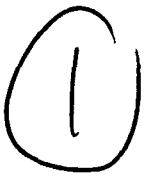

A RECOMMENDATION FOR THE HEAVY DIVISION COMMAND GROUP

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

PHILIP R. TILLY, MAJ, USA
B.A., University of Kentucky, Lexington, Kentucky, 1982

Fort Leavenworth, Kansas
1994

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This study investigates the heavy division command group's role, functional requirements, organization, and operation during combat operations. The thesis draws on five sources of information: historical references, doctrinal literature, current publications, a general officer survey, and interviews. The overall role of the command group is to assist the commander in his decision making process and support him in communicating those decisions. The most important functional requirements a command group must provide are communications, information, mobility, and protection. The command group structure and organization will adjust, based on situational requirements, commander's preferences and available equipment and personnel. The "model" command group would include: the G3 or deputy; the deputy G2; a Military Intelligence CPT, deputy Fire Support Coordinator, Air Liaison Officer, two battle captains, signal officer, vehicle mechanic, two Military Police teams, commander's aide, and two operations sergeants. The equipment would include: two M2s (for command and control vehicles), one M113 (for the Air Liaison Officer), two Miliary Police hardtop M998s, and two UH-60 aircraft. Communications equipment would include: Single Channel Ground and Airborne Radio Systems,; a single channel Tactical Satellite capability; Multiple Subscriber Equipment, and a Global Positioning System module to provide navigation support.

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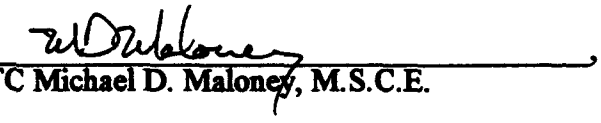
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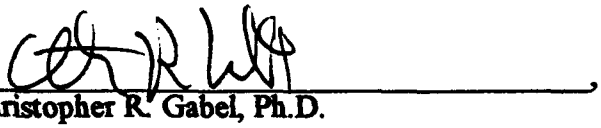
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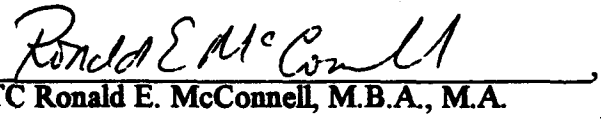
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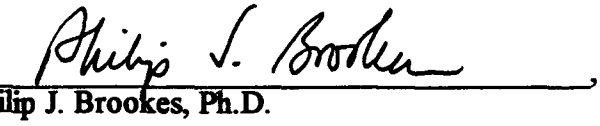
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (Reference to this study should include the foregoing statement.)

ABSTRACT

A RECOMMENDATION FOR THE HEAVY DIVISION COMMAND GROUP by MAJ Philip R. Tilly, USA, 152 pages.

This study investigates the heavy division command group's role, functional requirements, organization, and operation during combat operations. The thesis draws on five sources of information: historical references, doctrinal literature, current publications, a general officer survey, and interviews.

The overall role of the command group is to assist the commander in his decision making process and support him in communicating those decisions. The most important functional requirements a command group must provide are communications, information, mobility, and protection. The command group structure and organization will adjust, based on situational requirements, commander's preferences, and available equipment and personnel.

The "model" command group would include: the G3 or deputy; the deputy G2; a Military Intelligence CPT, deputy Fire Support Coordinator, Air Liaison Officer, two battle captains, signal officer, vehicle mechanic, two Military Police teams, commander's aide, and two operations sergeants. The equipment would include: two M2s (for command and control vehicles), one M113 (for the Air Liaison Officer), two Military Police hardtop M998s, and two UH-60 aircraft. Communications equipment would include: Single Channel Ground and Airborne Radio Systems; a single channel Tactical Satellite capability; Multiple Subscriber Equipment, and a Global Positioning System module to provide navigation support.

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The staff of the Combined Arms Research Library (CARL) of the U.S. Army Command and General Staff College (CGSC) responded marvelously to the countless requests for information and several phone calls seeking further references. Also, a personal note of thanks to my CGSC staff group and Academic Counselor, who supported this project through their comradery, professionalism, and computer expertise.

Lastly, this project would not have been possible without the inspiration, love, and tolerance of my children, Alicia and Brian. The most important member of our family team has been my wife, Jeanne. She somehow endured my long absences from family activities, permitted the late nights on the computer, and provided immeasurable help by assisting me in editing countless drafts throughout the year. My family's support enabled me to complete this work. This paper is dedicated to them.

TABLE OF CONTENTS

LIST OF ACRONYMS

1LT	1st Lieutenant
2IC	2d In Command
AAR	After Action Report
ACP	Assault Command Post
ACR	Armored Cavalry Regiment
ADC (M)	Assistant Division Commander (Maneuver)
ALO	Air Liaison Officer
AM	Amplitude Modulation
AOAC	Armored Officer's Advanced Course
APC	Armored Personnel Carrier
APU	Auxiliary Power Unit
BCTP	Battle Command Training Program
BFV	Bradley Fighting Vehicle
BG	Brigadier General
BOS	Battlefield Operating Systems
C2	Command and Control
C2V	Command and Control Vehicle
C3	Command, Control, and Communications
C4I	Command, Control, Communications, Computers, and Information
CACDA	Combined Arms Combat Development Activity
CALL	Center for Army Lessons Learned

CARL	Combined Arms Research Library
CAS3	Combined Arms and Services Staff School
CCIR	Commander's Critical Information Requirements
CGSC	Command and General Staff College
CN	Officers who served as ADC (M) or Regimental Commanders in combat
COL	Colonel
CONUS	Continental United States
CP	Command Post
CPT	Captain
CPX	Command Post Exercise
CV	Officers who commanded divisions in combat
DISCOM	Division Support Command
DIV CMD	Division Command
DIV FS	Division Fire Support
DIV O&I	Division Operations and Intelligence
DMAIN	Division Main (Command Post)
DS/DS	Desert Shield/Desert Storm
DTAC	Division Tactical Command Post
DTIC	Defense Technical Information Center
EPLRS	Enhanced Position Location Reporting System
FAX	Facsimile machine
FM	Frequency Modulation
FSCOORD	Fire Support Coordinator
FSE	Fire Support Element
G2	Intelligence (Officer or Section)

G3	Plans, Operations, and Training (Officer or Section)
GDP	General Defensive Position
GOMO	General Officer Management Office
GPS	Global Positioning System
HEMTT	Heavy Expanded Mobility Tactical Trucks
IMMARSAT	International Maritime Satellite
INTSUMS	Intelligence Summaries
IVIS	Inter Vehicular Information System
JULLS	Joint Universal Lessons Learned System
LTC	Lieutenant Colonel
LTG	Lieutenant General
M1	Abrams Tank
M113 (APC)	Armored Personnel Carrier
M2 (BFV)	Bradley Fighting Vehicle
M3 (CFV)	Cavalry Fighting Vehicle
M577	Command and Control Vehicle (M113 series)
M998 (HMMWV)	High Mobility Multi-purpose Wheeled Vehicle
MAIN CP	Division (or Corps) Main command Post
MAJ	Major
METT-T	Mission, Enemy, Terrain (and Weather), Troops, and Time available
MG	Major General
MI	Military Intelligence
MP	Military Police
MSE	Mobile Subscriber Equipment
MSRT	Mobile Subscriber Radiotelephone Terminal

NC	Officers who did not command at division level during combat
NCO	Noncommissioned Officer
NCOIC	Noncommissioned Officer In Charge
NTIS	National Technical Information System
ODS	Operation Desert Storm
OPLAN	Operations Plan
OPORD	Operations Order
OPSEC	Operational Security
PCC	Pre-Command Course
PCM	Pulse Code Modulation
POW	Prisoner of War
REFORGER	Return of Forces to Germany
RO	Rank Order
ROK	Republic of Korea
RTO	Radio Telephone Operator
SAMS	School of Advanced Military Studies
SATCOM	Satellite Communications
SICPS	Standard Integrated Command Post System
SINCGARS	Single Channel Ground and Airborne Radio System
SWA	Southwest Asia
TAC CP	Tactical Command Post
TACSAT	Tactical Satellite (communications)
TOC	Tactical Operations Center
TOCs	Tactical Operations Cells
TO&E	Table of Organizaiton and Equipment

TOT	Total sum of all survey respondents for a given survey question
TRADOC	Training and Doctrine Command
TTP	Tactics, Techniques, and Procedures
UH-60	Blackhawk Helicopter

CHAPTER 1

INTRODUCTION

As the Allied Coalition began the ground campaign phase of Operation Desert Storm on 24 February 1990, American forces in theater included five (5) U.S. Army armored or mechanized infantry divisions. Field Manual (FM) 71-100, Division Operations, was the newly released doctrinal manual under which these "heavy" divisions operated. Within each of these five divisions (two mechanized infantry, two armored, and one cavalry), the division commander would fight from an organization that FM 71-100 called a "command group." The command groups supporting each commander were as different as the commanders themselves. The purpose of this thesis is to develop a "model" command group, composed of currently available systems, from which armored and mechanized infantry division commanders could operate during combat operations.

The unpredictable events that led up to Operations Desert Shield and Desert Storm (DS/DS), and the swiftness with which a potential adversary can operate, highlight the criticality of being ready to conduct operations on short notice. Our current Army doctrine, as prescribed in FM 100-5, Operations, addresses this requirement in part through force projection. FM 100-5 describes force projection as "the demonstrated ability to rapidly alert, mobilize, deploy, and operate anywhere in the world."[1] Force projection is part of the strategic principle of power projection, and as such, supports the National Military Defense Strategy.[2] Because of this responsibility, American forces must be ready to deploy on short notice with what is currently available to us.

As the heavy division commanders embarked on the ground phase of Desert Storm, they also had to work with what was then currently available. This applied not only to equipment and personnel, but also to doctrine. Many commanders discovered, as they prepared for combat operations, that FM 71-100 specified some areas of command and control very clearly, while leaving other areas seemingly vague. In the area of the division command posts (CPs), FM 71-100 describes the organizational makeup, functional responsibilities, and command and control activities for which each CP has responsibility.[3] However, the manual states that the division will exercise command and control over "tactical operations through the command group and three command post facilities . . . . "[4] The manual makes the distinction that the command group is not a command post. FM 71-100 omits any specific details on the command group organizational makeup, nor does it cover functional or operational capabilities the command group should provide to the division commander.

Most of the division commanders organized their command group based on the factors of mission, enemy, troops, terrain, and time (METT-T), balanced with their individual requirements. Additionally, they had to work with currently available equipment, not with forecasted improvements. FM 71-100 recognizes that need and purposely leaves the commander a great deal of latitude in organizing his command group. But the manual fails to provide the commander a skeleton or blueprint from which to design his command group. FM 71-100 does not provide a "model" around which a commander can adjust or alter his own command group. Such a model would afford the commander a starting point from which he could modify his command group structure.

Based in part on this perceived "void" that FM 71-100 creates, the following research question developed: If a heavy division were to go to combat today, what should the command group structure be, what functional requirements should it support, and how would it operate?

Thesis Background

A common occurrence during Desert Shield was the commanding general's Aide-de-Camp being given responsibility for initially organizing and setting-up the command group for his commander. This author served in that position during the war for the 1st Cavalry Division Commander, then Brigadier General (BG) (P) John H. Tilelli, Jr. Many of the observations made in this text come from personal experiences. We found that there was no standardized structure from which to build our command groups. We either built it from the ground up, or fell in on a structure that the division Plans, Operations, and Training (G3) section had produced. We found that sharing ideas as we developed the organization was a good technique for refining our respective command groups. Interestingly though, no two command groups developed exactly the same. Vehicle selection and configuration, radio and communications equipment, personnel staffing, and the tactical employment of the command groups varied.

The above-mentioned differences merit a brief explanation. Following FM 71-100, the commander has a great deal of freedom in how he wants his command group to look and work. The five heavy divisions referenced did not uniformly share the same types of equipment, have the same missions before and during Desert Shield, nor were all the commanders familiar to the same degree with desert operations. Couple these points with the absence of a doctrinal prototype with which to work and one can see how variations developed. There was a great deal of idea-sharing on this topic during the initial phases of Desert Shield. Primarily as a result of various corps meetings and unit visits, the division commanders, their aides, and, interestingly, their drivers, would share ideas on command group organizations, configurations and tactics for employment. Based on these links, a few "smart ideas" developed and were shared among these command group players.

My observation was that we should have had some type of structure to build from, one that was doctrinally accepted as meeting the bulk of the commander's battlefield needs. This would have saved considerable growing pains in working out the bugs as we arrived at a final product.

One case in point was the decision to drop two Vulcan air defense weapon systems from our original command group structure within the 1st Cavalry Division. Upon initial deployment to our first assembly area, we had two of these weapon systems as part of our command group. It is important to recognize that we had just begun to work with the command group. We quickly discovered during training exercises that the Vulcans, while adding a superb air defense and direct fire mode capability to the command group, could not stay up with the M113 Armored Personnel Carriers (APCs) from which we were operating. The commander made the decision to drop the Vulcans from the command group. Had there been a significant enemy air threat anticipated during the actual operation, this decision might have been different.

This type of adjustment is normal as any command group organization would continue to refine itself. Had we known prior to our first training session that the Vulcans lacked the speed to stay up with the command group's tempo, we could have saved ourselves and the Vulcan crews some trouble.

The point is that all the division commanders were adjusting on the move when it came to their command groups. They were building their command groups around shared experiences, ideas, and common mission factors. If the situation had been different and time had not been as plentiful for preparation, the command groups might not have been as well developed nor quite as responsive to the commanders they served. American forces may not have the luxury of time when called upon again. Hence, we must generate some kind of design for the heavy division command group.

Secondary Questions

The secondary questions that accompany the primary research question revolve around the "components," of the command group itself. The plan initially focused on determining type of vehicles, radios, personnel, load plans, vehicle configurations (for operations and maneuver), action drills, crew operations, battle tracking procedures, and which training programs should make up a command group. It became apparent that the initial focus was too large.

In order to focus the scope of the thesis within workable parameters, the following secondary questions evolved: (1) What are the functional requirements a heavy division command group must support during combat operations? (2) What systems (equipment, procedures, and doctrine) are currently available to support those functional requirements? (3) What are the absolute critical pieces of information the commander must have in order to exercise battle command? (4) And what staffing should the command group have to support the commander's operational needs?

Key Terms Used Throughout the Thesis

The thesis contains the following terms:

Battle Command. (1) This is the art of battle decision making, leading, and motivating soldiers and their organizations into action to accomplish missions. It includes visualizing current state and future state, then formulating concepts of operations to get from one to the other at least cost. It also includes assigning missions, prioritizing and allocating resources; selecting the critical time and place to act; and knowing how and when to make adjustments during the fight.[5]

Battle Command. (2) It consists principally of commanders making tactical judgements and exercising leadership.[6]

Close Operations. These are offensive or defensive operations where forces are in immediate contact with the enemy.[7] Close operations are often referred to as the close fight.

Command and Control. (1) This is the exercise of command that is the process through which the activities of military forces are directed, coordinated, and controlled to accomplish the mission. This process encompasses the personnel, equipment, communications, facilities, and procedures necessary to gather and analyze information, to plan for what is to be done, and to supervise the execution of operations.[8]

Command and Control. (2) The process for exercising authority and direction by the commander over his forces within the division area of operations.[9]

Command Group. (1) A small party that accompanies the commander when he departs the command post to be present at a critical action. The party is organized and equipped to suit the commander, and normally provides local security and other personal assistance for the commander as he requires.[10]

Command Group. (2) The division commander and those members of his staff whom he designates to be with him, normally a G3 officer, a Fire Support Element (FSE) representative, and the Air Liaison Officer (ALO), as a minimum. The command group is not a permanent organization.[11]

Command Group. (3) The purpose of the command group is to make and communicate decisions and to provide leadership, direction, guidance, and supervision. The command group consists of the commander and whoever he designates to accompany him. The command group can locate anywhere on the battlefield, whether at a command post or on the move. Moving or stationary, regardless of location, the command group must be able to communicate with both subordinates and staff members and transmit decisions from any point on the battlefield.[12]

Command Group. (4) This is formed wherever the commander is -- in a CP, a subordinate unit's CP, or in an alternate location. Commanders at higher echelons may choose to form a command operations element, typically resourced from personnel in the Tactical Command Post (TAC CP) or Main Command Post (MAIN CP). This element must be highly mobile so it can provide the commander with a limited operations cell capability with the ability to move to the point of decision in support of the commander.[13]

Command Post. (1) A unit's or subunit's headquarters where the commander and the staff perform their activities. In combat, a unit's or subunit's headquarters is often divided into echelons; the echelon in which the unit or subunit commander is located or from where he operates is called a command post.[14]

Command Post. (2) It provides the commander and his staff a grouping of facilities for planning, directing, coordinating, and controlling forces and operations.[15]

Command Post Effectiveness Factors. These factors include speed, simplicity, design, standardization, continuous operations, qualified personnel, communications, information, and automation.[16]

Command Post Survivability Factors. These factors include mobility, austerity, dispersion, redundancy, signature, cover and concealment, deception, and operational security (OPSEC).[17]

Communications. This is the means through which commanders exercise immediate, personal (positive) control over their units. It is the vital link between command (the vision of an operation) and the outcome of control (battlefield activities which subordinates conduct). Within this vital linkage, computers and communications greatly enhance the capability of tactical headquarters to quickly collect, store, analyze, and transmit large amounts of information.[18]

Commander's Critical Information Requirements. These are characterized as: situationally dependent, specified by the commander, generally time sensitive, applicable

only to the commander who specifies them, normally published in an Operations Order (OPORD) or Operations Plan (OPLAN), normally transmitted over predetermined channels, and a link between the current and future operations.[19]

Deep Operations. These are operations designed in depth to secure advantages in later engagements, protect the current close fight, and defeat the enemy more rapidly by denying freedom of action and disrupting or destroying the coherence and tempo of its operations.[20]

Limitations

The greatest limitation found in conducting this research was the lack of literature specifically addressing the command group. Large amounts of literature are readily available that address command and control. These include countless volumes on its evolution as an Army process, principles on effective execution, and organizational structures to support the function of command and control. The various CPs that support a commander also receive a large amount of attention, but not the command group itself. Because of this limitation, it was necessary to examine the command group through indirect methods.

The next chapter discusses how it became necessary to review most of the spectrum of literature that related to the command and control function during combat. Suffice to say that several operational considerations that apply to a command post also apply to a command group. In researching this topic it is important to note that the command group, while not being a CP, is part of the division command and control structure. As such, division command and control served as a stepping stone sub-topic for further research about the command group.

Articles addressing the commander's ability to exercise command and control on the battlefield also contributed to the research process. Unfortunately, these articles

generally lacked a command group focus. They did, however, frequently contain excellent bibliographies for follow-up research.

The survey process used in this research produced two other limitations. (Chapter 3 discusses the survey in more detail.) The first limitation is respondent feedback, and the other limitation is the timeliness of the responses. In the first case, a researcher has no control over population responsiveness (i.e., how many surveys will be returned, if the person addressed on the survey actually filled it out, and if the person answering the survey clearly understood the intent behind each question). Similarly, the researcher cannot "force" the return of the survey to always meet his time requirements. Although the survey can have a suspense attached, there is no real authority through which to enforce it. These two limitations are inherent to the survey research design.

Another limitation to the research involved the interview process. The interviews conducted for this study resulted from the opportunities a Fort Leavenworth location afforded. General officers frequently travel to Fort Leavenworth to speak at the Pre-Command Course (PCC) and to serve as guest speakers. The limitation in this case was that only certain general officers travel to Fort Leavenworth. Consequently, the interview population is somewhat limited. Within this avenue, however, the interview was in one instance somewhat constrained by available time on the general's agenda. In all instances the general officers were very accommodating in supporting the interviews.

The last significant limitation is the topic of classified documents that directly support this research. The best evaluative source that clearly states what did and did not work in combat, specifically as it applies to combat leadership and to command and control, is the Joint Universal Lessons Learned System (JULLS) Long Report, U.S. Army Gulf War Studies Specific Collection, Group VII Corps. Chapter 2 discusses this report briefly. This report chronicles the VII Corps operations in Southwest Asia (SWA) and covers in great detail many lessons learned. It is, however, classified SECRET, and

because of this, the material contained therein was not directly included in this thesis. Finding unclassified cross-references partially bridged this limitation.

Delimitations

Numerous delimitations helped narrow the study's scope and direction. These delimitations were: consider only currently available and fielded systems in meeting functional requirements; limit the survey target audience to only heavy (armored or mechanized infantry) division commands; and within those divisions, target only those commanders who have served in that position since 1990.

The intent in considering only currently available and fielded systems was to adhere to the axiom that we will deploy for combat operations with what we have readily available to us. There are several initiatives under development within the Army sphere of command and control systems. These cover everything from communications equipment to dedicated command and control (C2) vehicles. The intent of this research is not to look ahead, but to look at what our requirements are and what we have right now to meet them. Two sources have validated this delimitation.

BG John Sylvester, currently serving as an Assistant Division Commander (ADC) within the 1st Infantry Division, Fort Riley, served as the "Tiger Brigade" Commander, 2d Armored Division, during Desert Shield/Desert Storm. During a presentation he gave at Fort Knox, he stated, "What you got is what you take," when it comes to deploying for combat.[21]

This notion of fighting with whatever you bring with you, and "don't hold your breath for the other stuff to arrive" is further substantiated by Lieutenant Colonel (LTC) David D. McKiernan's study, entitled Command and Control and Communications at the VII Corps Tactical Command Post: Operation Desert Shield/Desert Storm. Chapter 2 addresses this work in greater detail. The McKiernan study states, "If you don't bring it

with you to communicate, operate, or live with, you simply went without."[22] This again validates the requirement to be ready to fight with what you currently have.

The intent behind limiting the target audience to only heavy division commands was to sharpen the focus of the thesis. The command group functional requirements are very similar for both heavy and light divisions, but the equipment available for use in each is quite different. Additionally, there were more heavy divisions participating in the recent Gulf War than light divisions. Consequently, current information on heavy division operations might be more readily available. This author also has considerable personal experience in this area.

Heavy division commanders having filled that position since 1990 served as the survey population. The rationale here was to ensure an audience well-versed in current equipment, procedures and doctrinal applications as they apply to command group operations. Part of the rationale is to also include those commanders who served in the Gulf War and use their responses to contrast those commanders who have not operated from a command group in combat. Chapter 3 discusses this point in greater detail.

Significance

The significance of this study comes from providing heavy division commanders a design or model around which they can build or modify their own command group. The research seeks to capitalize on proven historical considerations for command group operations and design, combine that with doctrinal parameters, and consider comments from the field in order to produce a contemporary, functionally responsive command group.

CHAPTER 2

REVIEW OF LITERATURE

The research for this thesis incorporated three approaches. The first was to investigate historical accounts of command group activities with the intent of determining what operational requirements the command group served. The next approach explored published references that address division-level command and control, with specific emphasis on the command group. The last strategy assimilated results from a survey of heavy division commanders to determine what they felt a command group should do.

Initial investigation revealed that the amount of literature available that specifically addresses command group organization and operations is limited. There does exist, however, a wealth of information about the *functions* that typically characterize command group operations, specifically on command and control. These functions include: management of information, information requirements, transmitting vision, systems supporting C2, procedures to sustain and enhance C2, the effects of leadership on C2, historical examples of effective and noneffective battlefield command, and the evolution of the doctrinal definition of command and control.

In order to define and appreciate historically what a command group had to do in combat, one must first look at some of the things a commander himself must accomplish. These tasks are valid in the historical context and in the contemporary. The list of responsibilities could fill this text. FM 22-100, Military Leadership, stresses that a leader must provide "purpose, direction, and motivation to meet the demands of combat."[1] What does that really mean to the division commander in combat? Training and Doctrine

Command (TRADOC) Pamphlet 525-100-1, Leadership and Command on the Battlefield, addresses that question for combat operations by stating that commanders must exercise battle command, which "consists principally of commanders making tactical judgments and exercising leadership."[2]

By taking this one step further in examining how the commander actually "exercises leadership," one must look at the division's command and control structure and see what is there to assist the commander. FM 71-100, Division Operations, states that:

> The division commander maintains command and control by employing a command group and TAC CP forward in a brigade area of operations to directly influence the close fight. The critical factor is that he be located to see the total battle, make timely decisions, and lead by example.[3]

Using these three points as a starting place, the initial historical research sought examples that would illustrate these points.

Historical References

One source that addresses the commander's location on the battlefield and how he affected the fight is John Keegan's The Mask of Command. Keegan discusses four famous leaders and their styles of leadership. One of these leaders was Alexander the Great. Keegan looks at Alexander's style of forward leadership on the battlefield and how it influenced his soldiers.[4] Although Alexander was a great warrior, he was not exercising command once he engaged in the fight at the front. Being at the front he was a fighter more than a commander. But his men saw him, they knew that he was sharing their hardships and that he could understand and appreciate the situation from a firsthand perspective. This applies to our doctrine today, which recognizes the need for the commander to have a firsthand appreciation of the battlefield.[5] It also recognizes the need for the commander to "share the dangers and hardships of their units."[6]

Roger H. Nye's book, The Patton Mind, also addresses the topic of a commander's position on the battlefield. Though this book primarily examines General

George S. Patton's devotion to self study, it also provides great details of his battle command style and techniques. It shares insight into battlefield command and control during the wars in which Patton fought. One passage addresses early mechanized battlefield command during World War I:

> By the time Patton took the tank brigade into the Meuse-Argonne Operation on September 26 (1918), he had 345 tanks (including French Army units), and had worked out a successful scheme where he could be in the front lines while maintaining communications with his rear command post by means of pigeons and a group of six to ten runners.[7]

Nye also captures some of Patton's philosophy about a commander's location on the battlefield and where his priorities should be: "lead in person, visit the front daily, observe, don't meddle; praise is more valuable than blame; make personal reconnaissance."[8]

It is important to note that at the time Patton was conducting operations in World War I, the tank was a relatively new invention, and the doctrine for its employment was still evolving. Despite this fact, Patton still found merit in the fundamentals of battlefield leadership he had learned as a cavalry officer. These fundamentals included leading from the front and seeing the battlefield to make the most well-informed decisions.

The Rommel Papers, by B. H. Liddell Hart, provides an excellent historical account of General Erwin Rommel's operations during World War II. It covers the initial blitzkrieg across Europe, and then provides a lengthy account of the North African campaign. The book discusses Rommel's *Gefechtsstaffel.* This is the organization from which he fought and exercised command when not in a tank or subordinate commander's vehicle. The book describes the *Gefechtsstaffel* as:

> . . . a small headquarters group consisting of signal troops and a small combat team, together with the appropriate vehicles (including a wireless lorry), which always accompanied him in action.[9]

The Rommel Papers contains material identifying the functional requirements and employment of Rommel's *Gefechtsstaffel.* It identifies and illustrates many functional

requirements incorporated in this organization: the need for cross-country mobility;[10] personal reconnaissance;[11] small, well camouflaged signature;[12] speed of movement to stay up with the force;[13] limited protection against artillery;[14] and many tactical action drills that are still applicable to a command group. The parallel of Patton and Rommel stressing the need for "personal reconnaissance" underscores the importance of the commander's ability to see for himself.

One passage addresses the location of the commander, and his mobility and communications requirements:

> Commanders of motorised (what we now consider mechanized and armored) forces must therefore operate as near as possible to their troops, and must have the closest possible signal communication with them.[15]

One characteristic of Rommel's *Gefechtsstaffel* was that it retained sufficient combat power within the "combat team" to enable it to defend itself against limited attacks. There are many accounts of the *Geffechtsstaffel* having had to do just that.

History provides many examples of commanding generals who died while in a forward area during combat operations. While friendly combat forces offer some security, they cannot ensure the safety of the command group itself if they are detached from one another. A case in point involved the 3rd Armored Division in World War II and its commanding general, Major General (MG) Maurice Rose.

MG Rose died during combat operations on 31 March, 1945. While operating near the head of his division heading toward Paderborn, his "advance command party" was overcome by German tanks. Lead elements of the division had just bypassed these enemy forces when MG Rose's party passed down the road to their front. The tanks fell in behind the party and overtook them. The Germans captured part of his group. He died in what was believed to have been an attempt to escape. In his advance command party were his Division Artillery Commander, Colonel (COL) Frederick J. Brown; Major (MAJ) Robert M. Bellinger, his Aide-de-camp; LTC Wesley Sweat, Jr., his G3; and the vehicle

drivers. The party operated from an armored scout vehicle and the general's staff car. MG Rose also had a Military Policeman (MP) on motorcycle, Leonard L. Goff, who operated ahead of the command party for security.[16] In honor of his loss, VII Corps and First Army "adopted the name of 'Rose Pocket' for the operation which isolated the Ruhr."[17]

The need for mobility, speed, and self-defense is highlighted in this example. Although the likelihood of having to fight an enemy armor force with command group vehicles and weapons would not be extremely high, here is one incident where it did occur and the outcome had serious consequences.

To partially summarize at this point what a commander must do in combat, he must: see the battlefield (including the close fight, but also a representation of the deep and rear battle as well); be at the decisive place when needed; have the necessary information to make the right decision; and communicate that decision to his forces.

In referencing earlier historical texts, a lack of published material specifically addressing the command group exists. There are some examples that look at the command group but they are rare. As shown, however, material does exist that discusses the command and control considerations that commanders faced while in combat. These accounts are applicable to the command group in that they represent functional requirements that are still pertinent to the command and control process.

There are a number of relatively recent historical sources that reference a commander's location during combat. Some accounts actually describe a "command group" organization. One such source is by the U.S. Army Center of Military History, entitled Division and Corps Command Posts in World War II. Published in 1986, the author, Major Bruce R. Pirnie, scrutinizes where commanders spent most of their time. Pirnie looks at personnel, and equipment, that commanders took into combat.

> Commanders went forward with one or two vehicles and sometimes a small armed escort. They relied on subordinate units to provide security and command post facilities. On occasion, particularly during rapid advance, a commander might deploy a small forward command group.[18]

Pirnie also describes the makeup of this command group. Typically it contained the commander, his aide, the G3 or assistant G3, an artillery representative, communications personnel, and some kind of armed security escort suitable for the situation.[19] Pirnie also states, "Forward command groups were regularly employed in armored divisions during offensive operations."[20] The requirement to link in with the division command and control system, as noted through subordinate command posts while forward, was often satisfied through wire communications. "The primary means of communication was wire, increasingly supplemented by radio."[21]

Pirnie describes the need for commanders to be well forward in order to conduct personal reconnaissance, make face to face contact with subordinates, and obtain a first hand appreciation of the front conditions.

> The World War II division and corps commander spent most of his time forward. When his command post functioned well, the commander did not need to spend much time in it. Instead, he gained first hand knowledge of subordinate units and conditions at the front.[22]

One key point derived from the historical research: the commander being forward, in person, near the soldiers and near the critical activities taking place on the battlefield, is clearly an imperative requirement of combat leadership. The command group must provide the commander the necessary mobility and protection to exercise battle command well forward during combat. In The Mask of Command, Keegan states that "The first and greatest imperative of command is to be present in person."[23]

Current References

This portion of research data constitutes the largest portion of the thesis information material. As previously noted, FM 71-100, Division Operations, is the

doctrinal manual prescribing command group organization and operation at division level. This text is purposely vague regarding the command group structure so that the commander may alter the organization to allow for changes in personnel and equipment availability. Also, it allows the commander flexibility for adjusting to different mission requirements.[24] This was an important consideration in evaluating information concerning the command group because it mandated that "flexibility" be a consideration for command group organization and operations.

Current references were further subdivided into four topic areas: doctrinal guidelines; current information on battle command; recent lessons learned; and any other surveys that address battle command at senior levels. The intent of investigating these areas was fourfold: first, to capture and define the functional requirements a command group must support; next, determine practical command group organization structures; third, apply recent lessons learned in improving command group operations; and lastly, to exploit other survey information that would validate the previous findings.

Doctrinal Guidelines

Two manuals mentioned previously, FM 22-100, Military Leadership, and FM 22-103, Leadership and Command at Senior Levels, provide excellent sources of leadership fundamentals. These manuals are first in this section because they serve as the cornerstones of current doctrinal publications on leadership. Some key points brought out in FM 22-100, that address the principles of leadership are:

1. Make sound and timely decisions.
2. Set the example.
3. Know your soldiers and look out for their well-being.
4. Keep your subordinates informed.
5. Ensure the task is understood, supervised, and accomplished.

6. Employ your unit in accordance with its capabilities.[25]

These are six of the eleven principles of leadership, as listed in FM 22-100. Employment of the command group on the battlefield supports the commander's ability to execute these six functions. Further investigation shows how.

FM 71-100, Division Operations, does define some specific tasks the command group must support and provides some ideas on vehicle selection:

> The commander fights the battle from the command group and normally positions himself with the main effort initially. He has to be able to communicate with his brigade commanders and close enough to make face-to-face contact when necessary. The command group requires communications to enter the corps command, division command, brigade command, and division operations and intelligence nets with subordinate maneuver commanders, and the division TAC CP. The command group must use the same type of vehicle or transportation assets that the maneuver brigades fight in with no distinguishing signature.[26]

This description specifies and implies several functional requirements: communications (both while stationary and on the move); mobility (to reach forward subordinate commanders, and stay up with their movement); visual access to the battle from whatever vehicle he is in (to "see the battlefield"); and similar vehicles to those around him.

FM 71-100 allows the commander latitude in designing and operating his command group. It provides, as seen above, a rough idea of what it should do for the commander, leaving him with the flexibility, but also the burden, of figuring out how to make it work.

Since the start of this research, three significant publications have been released that address command groups and the command and control process. The first of these manuals is FM 71-100-2, Infantry Division Operations: Tactics, Techniques, and Procedures (TTP), the second is FM 71-100-1, Armored and Mechanized Division Operations: Tactics, Techniques, and Procedures (TTP) (Final Draft), and the third manual is FM 101-5, Command and Control for Commanders and Staff (Final Draft).

Their significance, in terms of this study, lies in the degree of detail they provide on the command group structure.

FM 71-100-2, Infantry Division Operations (TTP), addresses the division command group in more detail than FM 71-100. It provides a vehicular structure, radio requirements, personnel options, and describes the role the command group can play within the division command and control structure:

> The command group is provided to the division commander for protection in movements in the forward areas of the battlefield. Two HMMWVs (High Mobility Multi-purpose Wheeled Vehicle) are configured with Frequency Modulation (FM), Amplitude Modulation (AM), and MSE (Mobile Subscriber Equipment) communications equipment. They allow the commander to command well forward where his presence can be seen and felt and he can make timely decisions based on his personal observations of the close operation.[27]

On the subject of manning, this manual acknowledges the lack of a "doctrinal" blueprint for personnel but stresses minimal manning. Recognizing this as a matter of technique, it recommends that a G3 officer or an operations Noncommissioned Officer (NCO), a Military Intelligence Section (G2) representative, a Fire Support representative, and a Fighter Liaison Officer (if required), in addition to the commander's aide, be included within the command group.[28]

The command group serves as a key part of the infantry division command and control structure. In addressing alternate CPs, FM 71-100-2 states:

> Normally, the first choice for a TAC CP alternate is the command group vehicles. This element knows the situation and should be able to pick up the close operation without losing momentum and information transfer. It also possesses the organic communications capability and personnel to perform critical G3, G2, and FSE functions.[29]

Within this description, the command group would provide the commander with the same information as maintained at the TAC CP, though not specifically exercising command and control over the close fight. Unlike the TAC CP, the command group, during normal operations, would tend to eavesdrop on the key communication networks rather than actually operate. The commander would enter the nets only when necessary. He would

leave the bulk of the close fight directing and coordination to the TAC CP, under the guidance of the Assistant Division Commander for Maneuver, ADC (M). It is worth mentioning that "eavesdropping on the main effort or the unit in contact" is one of the proven successful battlefield command techniques that came out of Desert Shield/Desert Storm.[30]

Although FM 71-100-2 only addresses the infantry division command group, it is relevant to this study in that the functional requirements are similar to a heavy division. The infantry division, by its very nature, has somewhat different mission capabilities than the heavy division. But in the area of command and control on the battlefield, the command group in both divisions has specific requirements it must meet to support the commander. As already mentioned, mobility, communications, information transfer (analyzing to some degree "raw" information and passing it to the commander), and support of the division command and control system are some of those requirements.

FM 71-100-1, Armored and Mechanized Division Operations (TTP) (Final Draft), became available in October of 1993. The relevance of this publication is that it provides a model for the command group. The obvious question is, "Does it, therefore, invalidate this thesis?" The answer is no. Chapter 5, "Conclusions and Recommendations," will address this question further. As previously stated, the intent behind this thesis is to develop a model based on those areas of input stated earlier. This research may validate the FM 71-100-1 manual's version, and thereby add to its legitimacy, or dispute it altogether. The advent of this publication does, however, provide another source of information for this study. It is important to note that FM 71-100-1 and the FM 71-100-2 already mentioned, are not doctrinal manuals but are "tactics, techniques and procedures" publications. They do not mandate doctrine for these units, but offer suggestions to assist in their operations.

FM 71-100-1 addresses the command group's position within the division command and control structure in the same terms that the -2 states, in terms of serving as an alternate TAC CP.[31] FM 71-100-1 provides the following description:

> The command group is provided to the commander for protection in movements in forward areas of the battlefield. Two M113 APCs are configured with FM, AM, and MSE communications equipment to facilitate the commander's desire to command well forward. This allows him to make his presence seen and felt and to make timely decisions based on his personal observations of close operations. Generally, the commander will travel to the rear of the TAC CP in his HMMWV while pre-positioning the M113 command group vehicles at the TAC CP to link up with them and move further forward. When not in use by the command group, the TAC CP can use the M113s to use in echeloned displacement.[32]

The significance of this last statement within the quotation should not be overlooked. What this means is that the vehicles within the command group can be used as a "Jump TAC" when not being used by the commander (or actually even then if he so directs). This is a valid technique and worked well in the 1st Cavalry Division during Desert Storm.

It is significant to note, however, that when the command group is used in this role as "Jump TAC," it degrades its ability to provide the commander access to the battlefield through mobility. The commander can always travel in another vehicle or aircraft, but the primary information systems may end up remaining with the command group. The commander does have the option to equip other systems to provide him redundancy for his command group. A perfect example would be the UH-60 (Blackhawk) aircraft that (then) MG Ronald Griffith used in Desert Storm while commanding the 1st Armored Division.[33]

The manuals previously referenced do not mention how to set up the communication networks or information systems on board an aircraft to provide support as an airborne command group. Chapter Four addresses these communications requirements.

The only significant difference on personnel manning between the FM 71-100-1 and Fm 71-100-2 manuals is the -1 recommends the inclusion of a "scribe" to serve as a primary radio telephone operator (RTO) for the commander. He would be responsible to "quickly relay decisions made by the commander at the command group to the TAC and main CPs to begin the process of staff coordination and synchronization."[34] This position, though receiving little overall attention within the text, is a very critical one. Lieutenant General (LTG) Griffith further reiterated the importance of this duty during an interview for this research.[35] The interviews section of this chapter addresses his comments.

While both these manuals do offer some techniques for structuring the command group, they fail to discuss the actual operations within the organization. One objective of the command and control process is to "facilitate the flow of information that effectively supports the decision-making process."[36] Neither manual describes how to provide that information to the commander. One of the implied directives of both manuals is that the personnel within the command group will filter incoming information and provide the commander with only that critical information he needs to know. This starts to get into the commander's critical information requirements (CCIR). Following paragraphs will address this topic. Additionally, both manuals fail to get into the detail of structuring the internal vehicular arrangements necessary to facilitate the commander's battlefield needs.

What the two manuals do produce is a prototype from which commanders can start to develop their own command groups. The lack of detailed design within the command group again supports the idea of latitude afforded the commander, but also produces several unanswered questions, such as: map boards, communication equipment arrangements, generator requirements for prolonged stationary operations, personal equipment location, navigation systems, local security requirements, and general load plans. This leaves the commander and his staff to solve these problems.

FM 101-5, Command and Control for Commanders and Staff (Final Draft), August 1993, provides more detail on functional requirements for the command group, and command posts in general, than do FM 71-100-1 and FM 71-100-2. This manual also serves as a doctrinal text to prescribe command and control procedures and arrangements. The definitions provided earlier under Key Terms, specifically Command Group (3) and (4), come from FM 101-5. Also important within this manual are the survivability and combat effectiveness factors described for command posts. While not a command post within the parameters of being responsible for "planning, directing, coordinating, and controlling forces and operations,"[37] the command group does share many of these factors by the nature of its operations. Chapter 4, Analysis, discusses these.

FM's 71-100-1, 71-100-2, and 101-5 provide greater clarity to the division C2 structure and process than FM 71-100. Herein lies their most important relevance to this study. Additionally, they offer ideas for the actual command group organization.

FM 11-50, Combat Communications within the Division (Heavy and Light), April 1991, provides detailed information on the numerous communication channels operated within the division. In addressing the role of the communications community in supporting the commander, it states:

> The commander must be able to receive, process, and transmit information in a timely manner and his decisions require rapid distribution. If the commander sees the same battle as his subordinates, he can provide faster and more effective orders and support. The commander cannot be tied to one location if he is to influence these three areas (deep, close, and rear). Superior communications facilitate the commander's mobility.[38]

Chapter 4 addresses these nets within the command group communication channels for eavesdropping and operations. The next area to explore are those references available that address the command and control process.

Current Information on Battle Command

The area of command and control receives much attention. In seeking to define what functional requirements a command group must support, the necessity became evident of defining what the division command and control structure as a whole must support. During an interview with MG Bates, Commander 2d Armored Division, he stated that the command group serves primarily as a "conduit of information."[39] He further stated that the command group must function as an "extension cord of communications and information to the commander" from the division command and control system.[40] As seen thus far, information flow and management are essential factors for the commander to exercise battle command.

A central theme of this area's material is that during combat the commander needs only critical information which must be both accurate and timely. What that information is and how he receives it is one of the challenges of the command and control system. Understanding Commander's Information Needs is a 1989 RAND Corporation study initiated by the Army to determine what types of information a commander needs.

The RAND Corporation found several earlier studies that addressed the topic of commander's information requirements. One of their conclusions is that the earlier studies produced no consensus on what was uniformly "essential" to all commanders.[41] The study does identify three channels through which information is normally transmitted in supporting the commander. The study lists "the pipeline," "the alarm," and "the tree modes" of information exchange.[42]

Briefly, the study describes the pipeline mode as a normal, routine information flow over normal channels with an established format. The alarm mode represents an exception to normal activities and is information that often requires immediate attention. The tree mode is the branching out of an inquiry to different sources through different channels to acquire information for the commander.

The Army attempted to determine the critical pieces of information a commander needs in a 1985 study conducted at Fort Leavenworth. In this study, titled Division Commander's Critical Information Requirements (CCIR), the United States Army Combined Arms Combat Development Activity (CACDA) concluded that twenty-four CCIR existed. The intent behind this study was to standardize the information a division commander required to ease his decision-making process. It also sought to determine the baseline requirements for automated command and control systems.[43] Appendix A contains those CCIR.

Those characteristics described for CCIR under Key Terms are well suited for contemporary use. It is important to note that in this definition the CCIR are recognized as "situationally dependent," and normally specified by the commander.[44] One quality that is safe to attribute to CCIR is that they are often "alarm mode" in nature. The commander may eavesdrop on the bulk of the pipeline mode information, but he will not be an active participant on it. The tree mode may have more of his input as he seeks to clarify reports and observations through inquiry. This is often the case, too, after issuing new orders. "Decisions generate a requirement for more information."[45] Once the commander gives guidance, he needs updates on the status of execution. This adds more information flow into the system.

FM 101-5 (Final Draft), provides a list of possible questions the commander may ask to establish his CCIR. The manual recognizes that he should seek to limit the total CCIR number to six. Appendix B lists those questions. These CCIR provide a framework for information requirements a commander may generally need for operations; as such, they help define the functional requirements the communication system within the command group must support.

Within the framework of CCIR and the systems to manage it, LTC Jack Burkett wrote an article in Military Review entitled "Tactical Information: What You See is All

You Get." LTC Burkett states that: "Determining the most effective techniques to manage information is the most critical and far-reaching problem in today's C2 battlefield operating system (BOS)."[46] He acknowledges the pipeline, alarm, and tree modes of information flow as mentioned before. These "modes" serve as part of the technique for filtering information to the commander. He also points out the necessity to forward only analyzed information to command posts, the exception being when raw data is specifically requested.[47] This same rule of thumb should apply when sending information to the command group for the commander. He does not have time, nor the staff capacity within the command group, to conduct detailed analysis of information. One of the problems Burkett addresses is that Tactical Operation Cells (TOCs) are already overwhelmed with information, more than can often be processed.[48] Ensuring that only essential information flows to the commander is a functional requirement of the command group.

The historical references cited earlier assisted in defining functional requirements for the command group. The ideas of mobility and accessibility to the front are still sound concepts for the command group. General Crosbie E. Saint, former Commander in Chief, United States Army Europe, addressed the location of the commander on the battlefield in an article published in Army Magazine. In this article he points out the commander's responsibility to "go forward and gather the fighting commanders close to their own battlefields to synchronize battle actions and to allot assets as needed."[49] The idea of making face-to-face contact with subordinate commanders is critical. Additionally, the commander must still have a firsthand appreciation of the situation his forces face. This position would ideally be from where "he can 'see' and 'hear' the battlefield clearest."[50]

One of the key responsibilities of the "scribe" mentioned earlier is to ensure that, when the commander is making face-to-face contact with subordinate commanders, his decisions are being recorded. The secondary necessity is to make those decisions known

to whomever the commander designates as needing them. One observation made by the Center for Army Lessons Learned (CALL) is that:

> Many decisions are made in face to face discussions between commanders. Sometimes problems arise when these discussions are away from the CP. This causes problems for the staff in synchronizing the various operations as well as keeping the other players informed.[51]

The functional requirement here is for the command group to provide access for the commander to the front. Additionally, the command group must provide the operational ability to broadcast his decisions on the battlefield to those who have a need to know.

In "What Should a Command Post Do?," General Frederick J. Kroesen states that the command and control structure supporting the commander must allow him to have: "constant communications linkages with his subordinate commanders, supporting forces and agencies, his staff and the next higher authority in the chain of command.[52] This idea is also appears in FM 101-5 (Final Draft), and also in FM 11-50. All these sources assert the need for a robust, far-reaching, and secure communications system to support the commander. This point receives further attention in Chapter 4, Analysis.

Lastly, in seeking to determine functional requirements a command group must support, the factors for command post survivability and combat effectiveness, listed in FM 101-5, proved very valuable. (The section on Key Terms lists these.) Most of these command post factors apply to the command group as well.

Recent Lessons Learned

This area of investigation provided extensive material on systems that are capable of supporting command group operations, although generally not addressing these capabilities in light of a command group structure. Three areas provided the basis for this subtopic: recent DS/DS accounts, CALL periodicals, and various unit archives. These

accounts provide a basis for determining practical command group organization structure and command group operations.

In the area of the primary command group vehicle, FM 71-100-1 suggests the M113 series vehicle. Chapter 4 discusses the strengths and weaknesses of this vehicle. In his article "C2 in a Heavy Brigade -- Movement to Contact," COL Randolph H. House disputes the idea of using the M577 command and control vehicle as a forward operating C2 vehicle. Because of the limited speed and mobility of the M577 vehicle, his brigade could move at only 15 miles per hour (mph) during operations.[53] COL House addresses the division command group by stating: "The division forward command group has to be as far forward as possible, but is still tied to the combat multiplier assets controlled through the TAC CP or Main CP."[54] If the command group has the communications capability to reach those combat multipliers itself, it is not "tied," therefore, to the TAC CP. In stating this, it is again necessary to recognize that the division TAC CP still has the mission to fight the close fight and control those assets that affect the close battle. The division commander will maneuver those combat forces two levels down (battalions) through the brigade headquarters and the brigade commander. His immediate impact on the close fight is initially through those maneuver forces. But his deep fight contribution will ultimately shape the close fight.

In looking at communication systems to support the commander, CALL noted that the division and corps are hampered by range capabilities within their organic systems. Citing situations that developed in Iraq during offensive operations, they noted the range extension capabilities within each organization were limited by inadequate system support.[55] One CALL article addressing these shortcomings listed ways they were overcome.

> Extensive use was made of multichannel satellite, single-channel satellite, single-channel High Frequency, and multichannel Tropospheric Scatter Path (TROPO)

> systems. These assets were over and above what the tables of organization and equipment (TOEs) for division and corps now have.[56]

The importance of this point is in highlighting the need to have interface capability with these systems.

LTC McKiernan's study brings forth a number of points on command and control from the VII Corps TAC CP perspective. Although this is not the level nor organization under study, his points do apply to the operational functions of the command group. To summarize his main points, LTC McKiernan concludes that our Command, Control and Communication (C3) equipment has not kept pace with our weapon system developments.[57] He also points out that reliable communications systems were limited to single and multi-channel TACSAT (Tactical Satellite).[58] The continuous requirement for situational "snapshots" was a major demand on the communication network at Corps.[59] He identified three major imperatives at the Corps TAC CP relative to C3 in controlling and communicating on the battlefield: mobility; protection; and communications reliability and redundancy.[60] LTC McKiernan suggests where our C3 efforts should focus in the following excerpt:

> Use existing technology and already fielded equipment to develop the mobile, protected C3 vehicle needed for airland operations. Telescopic antenna, SINCGARS (Single Channel Ground and Airborne Radio System), TACSAT single and multi-channel, and a tough facsimile (FAX) machine are required. Add GPS (Global Positioning System), auxillary power unit (APUs), and durable and collapsible map/information boards.[61]

LTC McKiernan also states that the weak point in our current and anticipated C3 system at Corps and below is "in communications and command post vehicle systems."[62] The last point LTC McKiernan makes is on the use of aircraft for command vehicles. He recognizes the need for a substantial communications capability and points out the added necessity for air superiority to make the aircraft CP viable.[63] Additional works addressing C2 observations and lessons learned from Desert Shield/Desert Storm supported this area of research.

The JULLS report on VII Corps lessons learned from Desert Shield/Desert Storm is an invaluable document in assessing what did and did not work well in the C2 arena during combat operations. The document is classified SECRET but serves as a reliable starting point in tracking down key issues on command and control. The report addresses the area of communications in substantial detail,[64] and describes many division level C2 issues. There are many other functions, besides communications, that the commander must consider.

One operational function the command group must provide to the commander is the ability to rest. Although not addressed under the FM 101-5 list of operational effectiveness factors, this capacity is essential if the commander is to function over extended periods. CALL considers this topic in a brief section of its 90-8 newsletter periodical, "Winning in the Desert II." In this article, it states that "three to four hours of uninterrupted sleep each day will maintain mental performance only for 5 to 6 days."[65] The commander must have, as a minimum, access to this type of rest. This minimal requirement implies local security, isolation from battlefield noise, protection from the weather, a cot/sleeping bag, and a readily available communications link in case of emergency. When considering an austere load plan for the sake of mobility, this aspect is critical in prioritizing and allocating space. The internal vehicle compartment is dedicated to operational requirements, leaving the vehicle's outside for carrying any necessary personal items.

Surveys

One prior survey served as the last reference examined for the thesis. General Bruce C. Clarke conducted a survey in 1983 as part of a study on the Art and Requirements of Command. General Clarke surveyed 150 general officers, receiving approximately 80 replies, on topics ranging from their location on the battlefield, to how

they generated orders in the field, to the importance of face-to-face communications with subordinates, and to techniques that did not work and should be avoided. His study, specifically Volume II, "Generalship Study," contains comments from officers who co ıded from division up to field-army level. The most common theme in the responses he gathered centered on the importance of the commander being forward during combat.[66] Chapter 4 addresses the specific points brought out from his survey.

One area in this survey that helped in developing the survey process for this thesis was General Clarke's recognition of the inherent weaknesses associated with a survey. He points out three areas where the survey-method of research has potential problems: First, he states that the survey "confines the scope of comment."[67] Next he acknowledges that the questionnaire device does not allow for clarification of comments to the questions. Lastly, he notes the potential impact of having a highly recognized individual sponsoring the survey and how that might affect the quality of the responses.[68]

Summary

The literature available regarding the command group is limited. There are, however, numerous references that address the functional requirements of the command group that apply to this study. Using these additional sources there is adequate material to assist in the four original objectives for literature review: Capture and define functional requirements a command group must support; determine a practical command group organizational structure; apply lessons learned to refine command group operations; and exploit other survey findings. Chapter 4, Analysis, addresses the findings based on these references.

CHAPTER 3

RESEARCH METHODOLOGY

Chapter 3 describes the plan used for conducting the research to answer the research question. The research question is: If a heavy division had to go to combat today, (1) what should the command group structure be; (2) what functional requirements should it support; and (3) how would it operate? This chapter also describes how chapter four will present and analyze the data.

The fact-finding method of research, as described in Tyrus Hillway's Introduction to Research, is a technique where the researcher gathers published facts on a subject in order to obtain evidence for a study.[1] This method was the type of research initially used to support this investigation. This is easily done if there are ample references to supply the data base to support a given type of research. In this instance, however, concrete data that addresses the command group, especially historical and doctrinal references, is not abundant. Consequently, the research conducted focused on the descriptive method of research, which is discussed in greater detail later in this chapter. This technique sought sources that contained information addressing the command group, not as a primary topic, but through association with the main subject. These source topics included the heavy division command and control structure, a commander's role in combat, communication systems and techniques that support combat operations, doctrinal guidelines for command post operations, unit histories, and after action reports.

Initially three areas were thought to be sufficient in providing the necessary material to conduct the research. These areas included a historical review, a doctrinal

review, and a survey to the field. Briefly, the intent behind the historical review was to provide a basis for how command groups developed, what historically seemed to work in earlier command groups, and to detect any similarities between their operations then and now. The doctrinal review would generate sufficient evidence to substantiate the research problem. Additionally, it would assist in outlining the parameters of what functions a command group should support on the battlefield and aid in defining the role of the command group. Lastly, the intent of the survey was to confirm or refute the initial findings of the first two sources. Also, the survey would ensure that the research accounted for the major operational considerations of the command group, and provide another source of data addressing the research topic.

After first investigating these topic areas, two additional sources of data became apparent: current articles and publications addressing the command group (and similar topics), and the interview process. Similar to the other research areas, most of the articles and publications often failed to specifically address the command group itself, but did discuss those themes already mentioned. The interviews developed after recommendations from the research committee to exploit the availability of division commanders attending Battle Command Training Center (BCTP) sessions here at Fort Leavenworth. Also, many respondents to the survey expressed a desire to discuss the study either over the phone or during occasional visits to the post.

All five of these sources (historical, doctrinal, publication and articles, survey, and interviews), represented data resources. Given that the subject of the command group as a referenced research topic was somewhat elusive, the critical interpretation method became the secondary technique for conducting this research. The critical interpretation method relies upon some degree of initial fact, coupled with the researcher's ability to use personal experience, knowledge of the subject, and intuition.[2] Specifically, this meant interpreting and applying the substance of much of the printed references that

did not necessarily address the command group, but did address components, qualities, or functions that were applicable to the command group.

The following material will describe the research process, the tools used to conduct the research, and the physical process executed in gathering the data. Each subsection will describe one of the five research areas mentioned previously.

Historical Research

The initial period considered for this portion of the research was 1939 - 1945, specifically the Second World War. Additionally, the initial research considered only American divisions. The composite force structure within our Army over that period included the following types of divisions: one cavalry, one mountain, five airborne, sixteen armored, and sixty-six infantry combat divisions.[3] This area of research sought to gather data on heavy division command group operations from unit historical records. The delimitation of only American divisions was discounted later due to the discovery of the wealth of information found addressing German division operations for the same period.

At the outset, the intent behind the historical research was to see how command groups developed. Next it looked at what historically seemed to work in earlier command groups, and then sought to detect any similarities between command groups then and now. The primary starting point for all research conducted for this thesis was the Combined Arms Research Library (CARL) at Fort Leavenworth, in Bell Hall. Several automated systems are available in CARL to help in finding reference sources. The system primarily used in finding historical books on the subject was the DYNIX system. This is an automated catalog system that maintains information not only on texts within CARL, but texts that can be found within any of the libraries that use DYNIX. This resource provided most of the texts.

Another source of references came from the bibliographies of some of these texts. Many cross reference numerous sources in presenting points about historical operations. The bibliography contained in Patton's Third Army at War, by George Forty, contains many works, some of which reference WWII division operations.[4]

The process used in finding these works involved looking up division operations in DYNIX, using the time period mentioned as a parameter. After finding the section of the library that contained some of the books, more were found in close proximity.

DTIC (Defense Technical Information Center) was another automated system used in finding historical references. This system is available in CARL. DTIC contains a catalog-like data base on reports, studies, tests, and research topics. It produced one study entitled Division and Corps Command Posts in World War II, by Pirnie, used in this study.

Another source in exploring historical accounts was other officers familiar with the general topic of division operations during WW II. This is how The Rommel Papers, by Liddell Hart, and Uniforms, Organization and History of the Afrikakorps, by Roger Bender, were introduced to this researcher. Throughout the research process, the greatest source of information in finding more references for study came from other people, especially some of the librarians at CARL.

Later during the research process, several after action reports (AARs) and lessons learned documents provided valuable insight into many of the command and control functions that the command group supports. Most of these referenced Desert Shield/Desert Storm operations. Considering how recently this operation concluded, yet the historical nature of the data, this time frame extended the historical period mentioned earlier. The "Publications and Articles" subtopic will address the research methodology used for this source.

The division command group did not receive much attention in most of the books. The location of the commander on the battlefield, who his key staff personnel were, and how the commander worked with them, did receive mention. Also, some books referenced how the commander moved about the battlefield, his location during key moments of the fight, and with whom he kept company during operations. Chapter Four will address the key points determined from the historical research in summary format.

Doctrinal Research

The purpose behind this research was to first learn if doctrine did not specify a command group organization for heavy divisions, thereby substantiating the original research problem. The second purpose was to outline the parameters of what functions a command group should support in combat. The third purpose was to aid in determining the role of the command group on the battlefield.

The first step in this area was determining what "doctrine" meant in terms of military operations that apply to a division. For the purposes of this research, "doctrine" referred to material contained in FM 71-100, Division Operations, dated June 1990. What is not doctrine, but actually ways to carry out doctrine for division operations, is found in FM 71-100-1, Armored and Mechanized Division Operations: Tactics, Techniques, and Procedures (TTP) (Final Draft), May 1993.

Doctrine for division operations, as stated in FM 71-100, does not specify a command group organization in terms of functions, personnel, or equipment. (This statement belongs in Chapter 5, Conclusions and Recommendations, but also merits mention here).

The process used for conducting doctrinal research began with Chapter 3, Command and Control, of FM 71-100. Next came review of Section VII, Division Commander, Chapter 1, The Division, of FM 71-100. This section of Chapter 1 provides

information on what the commander must do to "win in battle."[5] Next came a review of FM 100-15, Corps Operations, which provided a source for command post operational and survivability considerations. It addresses how the division operates within the corps.

The next step was to find which "doctrinal" manuals could provide data on the command group. Many "hit or miss" efforts for finding the right manuals produced the list of manuals used in researching this thesis. Some manuals referenced other works for further clarity on some subjects. FM 101-5, Command and Control for Commanders and Staff (Final Draft), August 1993, provided significant details to many command and control factors associated with the command group.

The manuals on leadership, FMs 22-100, Military Leadership, and 22-103, Leadership and Command at Senior Levels, served as primary reference material during C710, Senior Level Leadership. This is a leadership course taught at the Command and General Staff College (CGSC). Another significant manual used during this research, although not specifically a doctrinal manual, was TRADOC Pamphlet 525-100-1, Leadership and Command on the Battlefield, 1992. This pamphlet highlighted many doctrinal requirements specified in FM 71-100 necessary for division commanders to accomplish and gave recent accounts of TTPs for achieving them. This text is also part of the reference material used at CGSC.

Most of the manuals are part of the standard issue of texts for CGSC and are readily available. Also, the third floor section of CARL contains an extensive collection of historical doctrinal manuals that are no longer in use. Several of these are worth referring to in charting the evolution of the command and control process within Army doctrine.

Although not very scientific in description (but it works), is the technique of using the manual listings in the back of many doctrinal texts for further references. Many of our manuals contain extensive lists of manuals that cover similar topics.

Chapter 4 will present a summary of the data found within these doctrinal texts. The analysis of this data will focus on referencing the functional requirements of the division command and control structure as they relate to the command group. Also, this portion contained under Chapter 4 will analyze division commander responsibilities on the battlefield.

Publications and Articles

The purpose of this research was to gather reasonably current articles from journals, professional magazines, and working papers that addressed the division-level command and control structure and process, battle command, communications during combat, and information management. This portion of the research also began at CARL. An automated system called INFOTRACK provides catalog-like information on magazine articles. There is also a system using CD-ROMs called PROQUEST, which I did not use, which provides magazine and journal publication information for tracking down a specific article on any given topic.

The 'Publications' portion of this subgrouping also refers to some lessons learned, after action reports, and Army lessons learned publications used during research. Again, CARL was the starting place with catalog listings of some of these found in NTIS (National Technical Information Services) and DTIC. Both automated systems contain listings of reports, studies, Army research (both contracted and in-house), War College papers, and many other sources of information.

The process of researching this area started with searching through the systems mentioned above for articles that specifically addressed the command group. That effort proved fruitless. The next topic investigated fell under the heading of command and control, which contributed many possible sources of information through published articles. Also, the listing of command posts produced a few leads. Most of the articles

listed in the directories were readily available either in hard copy or on microfiche. One limitation with microfiche is that the researcher must have access to a microfiche machine for viewing. The equipment available in CARL allows a student to not only view the microfiche, but also to print copies directly from the microfiche itself. This capability was particularly important for two articles used in this research: Division and Corps Command Posts in World War II, by Pirnie (mentioned earlier), and Command, Control and Communications at the VII Corps Tactical Command Post: Operation Desert Shield/ Desert Storm, by McKiernan.

Some articles addressed the commander's role on the battlefield, emphasizing the need for him to be mobile and at the critical place at the right time. The topic of a commander's location on the battlefield came up in a CGSC course this researcher attended. That discussion led to another source of relatively current information, Conduct of the Persian Gulf War: Final Report to Congress. This Department of Defense study of the Gulf War highlights some strengths and weaknesses of the command and control systems supporting our ground operations. It also contains a listing of several communication systems used during the operation

Cross referencing other sources through the bibliographies of some articles produced several articles that addressed the command and control process. Articles written in Military Review often contained considerable listings of other references for further investigation.

LTC (Retired) Jack Burkett has written numerous articles on information management for both the Army and for BDM, a civilian corporation for whom he now works. LTC Burkett was working in the local Leavenworth area at the onset of this research. He provided input to this study through articles and working papers he had completed and submission of drafts currently under production. LTC Burkett also recommended other sources of information (both people and publications) regarding

division-level command and control and information management that led to other sources.

The process of physically finding the data from these sources involved finding the articles, reading the material, recording pertinent information, and cross-referencing the bibliography listings. Copies of the articles made for readily available reference and were grouped by subject matter and time period. The studies themselves were copied and organized the same way. Many articles expressed TTPs for implementing command and control changes developed after the Gulf War.

Chapter 4 will present the data from these sources in summary format. The analysis of the data gathered from publications and articles, including lessons learned and after action reports, will focus on the division command and control structure, the division commander's role on the battlefield, and information management.

Surveys

This portion of Chapter 3 describes why and how the survey developed, how the population selection process occurred, the reliability checks used to verify the instruments in the survey, and the validity measures used to ensure production of an effective survey. At the end of this section is a brief description on how Chapter 4 presents the data and how the analysis occurred.

FM 71-100, Division Operations, purposely allows a division commander great latitude in his command group organization and operation. Recognizing this latitude and understanding how much division commanders may differ in their approach to organizing for combat, the concept of a division commander level survey developed. The intent behind the survey was to gather ideas from the field on where commanders prioritized their resources and efforts in developing their command groups.

Specifically, the objective of the survey was to confirm or contradict the information gathered from previous sources, ensure that the research was focusing on the right areas, and provide a forum to receive additional data information on the subject of the command group. This last thought considers the point that the intent of this product is to assist future division commanders in developing their own command groups. Given that consideration, ideas from current division commanders, who might be struggling with the issue of a command group, appeared as a valid source of information that might not be available through other means. The intent of the survey structure was to allow maximum participation outside the limitations of survey questions. A later section will discuss this point.

The first step in developing a survey is to determine if one already exists in order to preclude the unnecessary effort of reissuing a new one. This researcher found no surveys that addressed the issue posed by the research question. What was found was a survey that did parallel the direction of some command and control issues, but on a much broader scale. The survey in question, ARC - Art and Requirements of Command, by General Bruce C. Clarke, is a 1983 general officer survey that is part of a four-part study by the Army War College.

The purpose of Clarke's survey was to capture general officer perceptions on "command requirements, obstacles, means, and objectives,"[6] as they applied to the command process. The command process referred to here implies: mission evaluation and interpretation, issuing of directives, monitoring staff development of plans and orders, and follow-up and evaluation.[7] These activities are organic to the commander's area of responsibilities, but do not directly relate to the research question. This is an excellent work that generated several definitions used in the survey finally produced for this study. One definition in particular being the second definition of "access" used in Question #4. In Clarke's survey, this battlefield command consideration is cited on page 74, with the

question, "how important was face-to-face contact with subordinates?"[8] Although not directly applicable in this format, the concept of what represents "access" was relative to the operational factors of the command group. Clarke's survey did not answer the research question, but did illuminate areas worthy of consideration for constructing the survey used in this study.

The population used in this survey was based partly on the decision to consider only currently available systems. Significant effort is ongoing in developing numerous "systems" to assist division commanders in exercising battle command. But this study concerns itself with only currently fielded and available systems. Including those commanders who have commanded divisions during combat to exploit their experience on what worked and what needed improvement meant going back as far as 1990. This time frame also lent itself to including those general officers who would have some familiarity with current systems, whether they were still active duty or had left the service. The study looks at command groups within heavy divisions so that also helped define the population.

The population profile developed around those officers who are now serving, or have served, as division commanders within heavy divisions since 1990. The next step was to find out who these officers were and how to contact them. The General Officer Management Office, or GOMO, assisted in this step. This office, located in the Pentagon, is responsible for management of all general officers within the U.S. Army. They provided a comprehensive listing of all division commanders who were currently serving or had served in that position since 1990. Some of the divisions that existed in 1990 no longer exist today as active divisions, the 3d Armored Division being an example. GOMO also provided a list of addresses and telephone numbers for these officers.

The original and secondary research questions guided the survey question selection process. The aim of Questions #1 and #2 was to determine who had command

group experience. From that body came a determination of who had command group experience in combat as commanders and who did not.

Questions #3 through #6 considered what information was most important for the commander to have to exercise battle command. These questions reflect an initial assessment that information is foremost in importance in helping the commander in the command and control process. This was based on analysis of what FM 71-100 emphasized under Command Group operations in its Chapter 3. Also, an earlier study referenced in this study under Literature Review, Chapter 2, discussed the Commander's Critical Information Requirements and how they affected his command process. Both sources contributed to this assessment.

The next question, Question # 7, focused on communication systems to support the transfer of information. Those systems listed represent currently fielded communications systems supporting active divisions. They also represent systems that have been in use since 1990. The intent behind this listing is to capture a consensus on which systems commanders prefer. The same criterion applies to the next question, #8, about navigation systems.

The question on local security, #9, seeks to determine how large a security force commanders feel a command group merits. Question #10 discusses continuous operations with the intent of determining how large a "staff" or crew should make up the command group. Question #11 seeks clarity on the commanders' ideas about how to sustain operations with limited personnel.

Question #12 asks the respondents which vehicle they would most prefer to operate from during combat operations. The purpose of this question is identify a consensus or trend for C2 vehicle preferences.

Question #13, the comment sheet, is an open invitation for commanders to address any area the survey may not have addressed to their satisfaction, or to provide

clarity on points that the answers may not have allowed. Question #13 also allows room for comments on what key personnel commanders would prefer to include in their command groups.

There is one point about the survivability and operational factors listed in Questions # 4 and #5 that merits clarification. Analysis of FM 101-5, Command and Control for Commanders and Staffs, and Clarke's survey, generated these factors. Some of the original factors listed in FM 101-5 are purposely omitted because they do not apply to a command group, and new ones are introduced because they do.

The reliability checks used to verify the questions consisted of giving the survey to two officers currently attending the School for Advanced Military Studies, or SAMS, at Fort Leavenworth. These two officers took the survey to evaluate the clarity of each question, to determine if the message perceived by them for each question was the one originally intended, and to see if 30 minutes was enough time to complete their work. Thirty minutes, it was felt, would be a reasonable time for a general officer to complete the survey in one sitting.

This technique of a "trial run" produced a revision on some questions, and a minor change in the format of the survey itself. The "trial run" also supported the decision, in light of time considerations, to limit the survey to no more than 13 questions. Additionally, feedback highlighted the need for the questions not to be split on different pages. The last point generated from the "trial run" was a recommendation to include on each page the instructions for answering that particular question.

Content and Construct were the two areas of validity that this initial "trial run" also considered. The quality of content means, "Did the survey ask the right question?" While the quality of construct means, "Did the population understand the question with the same meaning intended for it?" The two SAMS students had no problems in either area. They did make, however, a few sound recommendations that altered various

sentence structures, and provided a survivability factor listed in question # 5. The use of this "trial run" produced significant gains in the final development of the survey. A point discussed in Chapter 4, Analysis, highlights a break in the "construct" intended for one question as later reported by one of the respondents to the survey. During an interview with LTG Tilelli, he pointed out that his perception of "combat operations," as referred to in Questions #10 and #11 for continuous operations, included the initial planning stage, deployment stage, and all the post-conflict operations. The point learned here is to do a trial run with someone who is very similar to your target population, if possible. The feedback is likely to be more in line with what the population will generate.

Lastly, Appendix F presents the survey data in a table format. "Quattro Pro for Windows", an excellent spread sheet program, provided this capability. The analysis of this data is descriptive, rather than statistical. This means that the analysis follows subjective interpretation based on trends more than on disciplined numerical analysis. The rationale is due to the nature of the questions, the lack of consistent responses in line with the instructions for filling out the questions, and the diversity of the comments that accompanied the surveys.

The methodology employed in constructing the tables listed the raw data under each respondent's designated number. The same number applied to that individual respondent throughout the data tables. Next, a value was assigned to the answers submitted by the respondents. For example, if the respondent listed "GPS," (Global Positioning System), as his first choice for navigation systems, the "1" rating received an "8" under Rank Order Value, or "RO" as it appears on the table. With eight possible choices for that particular question, the highest numerical value for an answer would be an "8." These numerical values were then totaled under four separate columns: a total sum listing for all fifteen respondents (under TOT); a listing of the four commanders who commanded divisions in combat (under CV); a listing of the three officers who served

either as ADC (M)s or regimental commanders in combat (under CN), and lastly; a listing of the eight commanders who did not command at division level during combat (under NC). The highlighted RO column at the far right side of the table stands for overall ranking within that category.

The intent behind distinguishing the commanders under CN was to recognize their unique position for addressing the survey. Although they may not have commanded the division during combat, they did serve as the 2IC, or Second in Command, the one exception being the now-serving division commander who commanded an Armored Cavalry Regiment (ACR) in combat. The purpose of distinguishing these commanders was to determine if their results fell more in line with the CV sample or the NC sample. Chapter 4, Analysis, will address these points.

In a case where a respondent would assess the same ranking for two answers, the ranking, and subsequent rank order value, would list those answers as the mean value that the rankings would occupy. For example, if the respondent listed "Mobility" and "Armor Protection" as a tie for number "3" in his rankings, a number 3.5 would appear for both answers, accounting for the third and fourth placements among his rankings. Likewise, the RO figure would also mirror the like values for both answers. The answers to the questions are listed with the data tables, often appearing in abbreviated form to adjust for limited table space.

Chapter 4 and 5 address the lessons learned from these responses. Included at the end of this study is Appendix E which lists those general officers making up the population group. Appendix F contains the survey data tables. Appendix G includes survey comments presented in a summarized format. One stipulation of the cover letter that accompanied the survey was that the results would be presented in summary format only. The listing of the general officers in the Appendix does not correspond to the order of respondents listed on top of the tables in Appendix F.

Interviews

The purpose of the interviews was to collect information about command group operations from personnel who had served in a command group. The interviews would allow survey respondents the opportunity to expand on their answers and give additional information to the study. This section's purpose is to describe how those interviews occurred, the data collection procedure, and how Chapter 5 will present that information.

The Battle Command Training Program (BCTP) is at Fort Leavenworth. The BCTP trains division and corps level commanders and staffs on operational planning and development. BCTP also uses simulations and Command Post Exercises, or CPXs, to exercise these units in executing their staff products during training exercises. While these units come to Fort Leavenworth, the opportunity to interview the division commanders is available. Also taught at Fort Leavenworth is the Pre-Command Course (PCC). This course prepares battalion and above commanders for taking command. The course involves many general officers from across the Army who come to speak to the students. Both activities present an opportunity to address current and past division commanders about command group operations.

The objectives for conducting the interviews with current division commanders were to first determine whether they currently trained with their command group, how they organized their command group, and what functional requirements they assessed as most important. Additionally, the interview sought to expand on survey responses and gain clarification to their answers. An additional benefit gained from the interviews was constructive feedback from the general officers, and others, on the survey. They also recommended other personnel to contact in pursuing additional information on the command group.

The interviews with the general officers usually were coordinated through executive services when the general was taking part in PCC. This allowed the opportunity

to interview the officer in a quiet office that was usually designated for his use during his visit to post. By furnishing the officer with a copy of his survey responses at the beginning of the interview, and reviewing the purpose of the study and the research question, the officer could familiarize himself with the subject material. The interviews would normally last no more than an hour.

To prepare for the interview, this researcher started by looking over the survey responses submitted by the officer. Questions for the interview came partially from responses to the survey that required clarification. Also, many comments contained with their surveys generated further discussion. The interviews also afforded an opportunity to discuss issues the survey did not address. One such area was how the commander would continue to monitor the deep battle while operating near the close battle. This question applied to those officers who had actually fought in combat from the command group. A question posed to those commanders currently in command was why there wasn't more emphasis on commanders operating from their command groups during peacetime training sessions.

The interview responses were recorded on a notebook that contained th interview questions and extra room for comments outside the planned interview. Within four hours after the interview, the original notes were rewritten in more legible handwriting so as not to forget any details as time passed. The interview notes were collected and assembled into a chronological file with significant points highlighted. Appendix H contains some of the interview comments.

During two of the interviews, the general officers recommended additional people to contact to follow-up on other areas. This proved very productive, especially in the area of key staff members operating within the command group. Chapter 4 describes some TTPs generated from the follow-on interviews that are worth mention. Chapter 4 will summarize key points generated from the interviews.

Summary

The purpose of this chapter was to describe the plan used to obtain data for this study. The final five areas investigated for gathering data were: historical review, doctrinal review, publications and articles (to include lessons learned and after action reports), surveys, and interviews. The technique for each area was to identify what information was sought, determine the source of that specific piece of information, find out the accessibility of that source, get to the source, record the pertinent information, and organize the information in the order expected for use within the study.

CHAPTER 4

ANALYSIS

The purpose of this chapter is to present, explain, and interpret the data collected for this study. As mentioned in Chapter 3, five areas of data collection generated information for this research. These areas are historical review, doctrinal review, publications and articles, surveys, and interviews. Chapter 4 will focus on one area at a time. This chapter will also describe difficulties encountered during the study, lessons learned, and suggestions for avoiding the same obstacles. This chapter establishes the foundation for the conclusions and recommendations presented in Chapter 5.

Historical Review

The intent behind the historical review was to look at how command groups developed, gather information about what historically seemed to work in earlier versions, and detect any similarities between command groups then and now. The period considered, 1941 - 1945, during WWII, looks at both American and German heavy division operations. Review of historical accounts of both forces produced many similarities in command group functions.

The data collected, in large part from Pirnie's Division and Corps Command Posts in World War II, described American division commanders as moving to the front of their division area of operations after receiving an initial morning update. They moved in "forward division command posts"[1] with a small group of vehicles accompanying them. The organic communication link of this group back into the division command and control network was not robust, consequently, the commander relied upon subordinate unit

headquarters for command post support.[2] This procedure of employing the command group in such a manner was due to several command considerations and equipment limitations.

The need for division commanders to acquire a clear "picture" of the front line situation often meant speaking directly to the forward subordinate commander. This technique afforded the division commander the opportunity to make face-to-face contact with his subordinate commanders, to develop an assessment of the situation based on those commanders' personal analysis of ongoing conditions, and to be near the critical events on the battlefield.

It is important to note that division commanders of that period did not have available to them the same long-range systems we use today for deep operations. A division commander's focus during this period concentrated on the close fight more so than today. Being in a position where he could contact the subordinate brigade commanders directly, either personally or through radio, allowed the commander the greatest ability to influence the ongoing fight. In General Clarke's survey, mentioned in the previous chapter, the "majority" of the general officers surveyed responded that they spent no more than 25% of their daylight hours during operations at their command posts.[3] They spent the rest of their time in the field with their units.

B.H. Liddell Hart's The Rommel Papers provides detailed insight into the day-to-day operations and activities of General Rommel during the North African Campaign. His *Geffectsstaffel* provided him with the operational and survivability support needed to conduct mobile operations in the desert over great distances.

Although the time period is outside that established for command group consideration, review of earlier commanders on historic battlefields reveals that commanders often did go well forward to assess the situation personally. In John Keegan's The Mask of Command, he studies how four famous commanders operated on

the battlefield, paying particular attention to their positioning during combat. He describes Wellington's continued practice of "going to see for himself"[4] as part of Wellington's unique personal command style. In Personal Memoirs of U.S. Grant, the author describes how he constantly went forward to "see for myself" the activities of his forces.[5]

The materials studied under historical review generated the following analysis:

1. Commanders go forward on the battlefield to get an accurate assessment of the battle.

2. Commanders locate where they can influence the fight through contact with their subordinates.

3. Commanders obtain the best estimate of the current situation through personal reconnaissance and face-to-face contact with their subordinates.

4. The command group structure developed to support the commander's need for mobility in getting him to the front, while still providing him some communication means to his force, either through messengers or electronic means.

5. Those command group organizations that performed well in World War II provided the commander with mobility, protected access to the front line subordinate commanders, and reliable communications.

6. The potential threat of enemy encounters produced the need for some type of local security to accompany the commander.

7. The selection of personnel who would accompany the general varied among commanders.

One of the difficulties encountered during this portion of the research was lack of clearly defined "command group" references. Individual commander's styles in combat represent a large volume of material for exploring. The Pirnie study does not mention command groups in the title, but does reference them later in the text. The typical process for finding historical information about anything to do with command group activities

usually involved looking up topics related to the division command and control process or structure and then digging into the material. One lesson learned from the historical review is to set up a time period parameter. Depending on the research topic, historical examples can overwhelm a researcher. By establishing a window for examination, a researcher can focus his efforts toward a more well-defined objective. Another lesson learned is to exploit the bibliographies of historical studies. This technique produced Clarke's survey for this study.

Doctrinal Review

The objective of the doctrinal review concentrated on answering three questions. The first question was: what, if anything, does doctrine suggest for command group organizations? The next question was: what functional support does doctrine direct the command group provide the commander? And the third question was: what is the doctrinally defined role of the command group on the battlefield? The following represents the analysis of the data generated by researching the doctrinal literature applying to command groups in summary format. An explanation follows addressing each key point.

The significant doctrinal findings that apply to this research are:

1. FM 71-100, Division Operations, does not dictate a command group organization.[6]

2. FM 71-100 directs the command group to provide communications, mobility, and necessary personnel to support the commander within the command group.[7]

3. FM 71-100 requires that command group vehicles be the same type of vehicle the maneuver brigades fight in with no distinguishing signature.[8]

4. FM 71-100 does not define a specific role for the command group within the division's command and control system.[9]

5. FM 71-100 acknowledges that the mission and personnel available will cause the command group to adjust.[10]

6. FM 71-100 states that to "win in battle" a commander must "see the battlefield," "concentrate forces," "direct the battle," and "maximize weapon capability."[11]

7. The command group initially locates with the TAC CP and moves forward during operations to support the commander.[12]

8. FM 101-5, Command and Control for Commanders and Staff, describes the command group as being anywhere the commander is.[13]

9. Army manuals that prescribe doctrine, not TTPs, do not address the division command group in great detail.

Explanation

FM 71-100, the doctrinal manual for division operations, does not dictate a command group organization because the commander will ultimately decide what the structure will be. The command group will form and operate based on the factors of METT-T, the commander's individual preferences, and the availability of systems to support it. The commander will define the responsibilities and functions of the command group within the division's command and control structure. These functions will determine what systems make up the command group.

The command group provides communications support to the commander that allows him to enter the corps, division, and brigade command nets, and the division operations and intelligence networks.[14] The command group, whether on the ground or in the air, provides the commander with mobility support. This mobility support allows the commander to travel anywhere within the division area of operations while continuing to provide him reliable communications. This mobility normally places the commander near

the division main effort, at the critical place on the battlefield. Mobility allows him to shift his location rapidly as the main effort of the close fight may also shift.

Deciding the necessary personnel to support the commander in the command group is a function of what the mission requires balanced with what the commander needs. FM 71-100 suggests the inclusion of a G3 officer, a fire support representative, and the ALO, as a minimum. It is ultimately the commander who decides who will accompany him in the command group.

Command group vehicles should be the same as those fighting in the maneuver brigades. The rationale here is to provide security for the command group by reducing its signature. Signature is a survivability factor described in Chapter 2.

The role of the command group, within the framework of the division command and control system, is purposely undefined by doctrine. It will be whatever the division commander wants it to be. This point recognizes that the command group's role, like the division commander's leadership style, is unique to that commander. How much influence the commander exerts over the execution of the operation depends on several factors.

The first factor, and the most important one, is the style of the commander. If the operation is going smoothly and he does not have to actively direct activities, he may just monitor the situation and allow his subordinate commanders and his staff to execute the mission. Or conversely, his style may be to vigorously interrogate his subordinates for updates and communicate constantly with adjacent units. The role of the command group will reflect the leadership style of the commander and how he sees himself contributing to and directing the fight.

Adjustment to the command group structure, operation and organization will change as the division's mission changes and as personnel availability fluctuates. The division may receive a new mission committing it into an environment where a significant air threat is present. This new mission may generate a requirement for some type of air

defense capability beyond that already present in the command group. This would change the structure of the command group. If an enemy attack destroyed the TAC CP, the command group mission might change to temporarily serve as the TAC CP. This might not change the division mission, but would represent a change in available personnel within the command and control structure. The organization might also change if a requirement for an interpreter developed to facilitate combined operations with an ally, or to assist with handling prisoners.

The command group functions to support the commander's ability to "win on the battlefield." His ability to "see" the battlefield means the command group must physically place him in position to physically view critical battlefield events. It also means that the command group must provide the necessary information for him to "visualize" the dimensions of the battlefield, including the effects of time.

The ability to "concentrate forces" requires that the command group provide the commander with the ability to communicate with his forces. He must also know their disposition and condition, and that of the enemy. He also needs to know the effects of the division's combat power against the enemy. Concentrating forces applies to the battlefield dimensions of deep, close, and rear operations.

"Directing the battle" means the commander can assess the situation based on timely and accurate information. He may then consider his options based on prior planning and staff recommendations. Lastly, he can communicate his decisions to the force as he ensures synchronization of the division's combat power.

"Maximizing weapon capability" means the commander must first maneuver his forces to gain a positional advantage on the battlefield. He then ensures that all systems that can affect the fight can exploit their intrinsic weapon strengths. He accomplishes this last function from the command group by successfully seeing the battlefield, concentrating forces, and directing the battle.

The command group is part of the division command and control structure. FM 71-100 does not consider the command group to be a command post (CP).[15] During operations it initially locates near or with the TAC CP. This aids in the physical exchange of information, enhances local security, and provides redundancy to the command and control capabilities of the TAC CP. Once operations [illegible] the command group facility moves forward, somewhere near the main effort, and establishes a position. When the commander is ready to shift his location to the command group facility he may move by either air or ground transportation. (He might also choose to move forward with the command group facility, but only if he can maintain a clear assessment of the situation and have reliable communications enroute).

The commander may move between the command group facility and the TAC CP during combat. He will locate wherever he can best direct the fight. As the TAC CP or command group displaces to a new location, the commander may relocate to the other command and control facility.

According to FM 101-5, the command group is wherever the commander is located. This implies that the command group is constantly changing in composition and location as the commander moves about the battlefield. The command group, in this sense, is composed of whomever the commander retains with him. This also means that the command group is as much a "function" as it is an organization. The command group facility (mentioned on the previous page), consisting of equipment and personnel, refers to that location where the commander will locate himself and his immediate party (his command group) for operations.

In summary, there are numerous Army manuals that address command and control, leadership, battlefield command, and conducting combat operations. The doctrinal manuals that specifically address the command group, in general terms and at division level, are limited to FM 71-100, Division Operations, and FM 101-5, Command

and Control for Commanders and Staff. The information contained in other manuals researched contributed to the analysis and interpretation of the data gathered from these two manuals.

The overall analysis of command group doctrinal material generated the perception that the command group is purposely left undefined in organization and in its battlefield role within the division command and control system. Current Army doctrine does address the functions of communications and mobility, coupled with personnel support, as necessary functions the command group must provide for the commander.

Publications and Articles

The publications and articles researched for this study provided extensive information addressing division-level command and control, battle command, combat communications, and information management. Additionally, these same sources identified strengths and weaknesses for the systems that support the command and control process, particularly in the area of equipment. The following is a summary of the key points developed from the analysis of these information sources:

1. Division operations require long-range, on-the-move, secure communication capabilities.[16]

2. TACSAT, MSE, and SINCGARS, address most of the commander's communication needs.[17]

3. The CCIR change, based on the situation. The commander determines the initial "cut" and can adjust as the situation develops.[18]

4. Filtering only necessary information to the commander is a command group function.

5. Access to information, and also the management of that information, is just as important to success on the battlefield as coordinating fires and maneuver.[19]

6. A primary function of the division command and control structure is to provide the commander reliable communications with the ability to communicate his directives.

7. The commander must still go forward to see and assess the battlefield.[20]

8. The GPS is invaluable for supporting command and control operations.[21]

9. Telescopic antennas support a fast-tempo operation. APUs are necessary for stationary operations. Map boards need to be detachable and mobile. A FAX machine provides a hard-copy capability to the command group.[22]

10. The M577 vehicle hinders a fast-tempo operation due to its limited speed.[23] The M113 is a possible substitute, but it lacks the self-defense capabilities an M2 Bradley Fighting Vehicle (BFV) can provide while providing the same communications.

11. Communications, mobility, and protection are the major functions a command group should provide the commander.[24]

Explanation

Division operations, especially offensive operations, demand that the division communications networks support extended range requirements. Line of sight systems cannot accommodate the commander's need to speak with the division main CP if it is 100 kilometers to his rear. The need for redundancy, in the form of back up systems, is necessary to address possible battle losses, equipment failures, and equipment maintenance down time.

With ever increasing distances over which division operations may occur, the TACSAT system provides a robust division-level communications network. It also supplies the division commander with a dependable link to the corps C2 structure, operating at even greater ranges. Strengths of this system include a "talk-anywhere" capability that overcomes line of sight requirements and the need for an emplaced support

infrastructure. Weaknesses of the system include setup time (single channel), power source (single channel require batteries if not vehicle mounted), and jamming vulnerabilities. Single channel TACSAT provides more responsive and mobile support for a command group than the larger multi channel system.

MSE is characterized as highly reliable with low maintenance requirements. It provides a secure, "on-the-move" capability over certain distances. MSE provides the capability to link in with other communications systems to expand its service. MSE also provides data service and voice (telephone) capabilities. MSE can interface with FAX machines as well.

The SINCGARS system provides a robust, secure FM capability to the division commander. This system operates in extreme weather conditions, can transmit data and voice, has an extremely high performance record, and represents a great improvement over earlier generation FM radios.

The combination of these three systems (TACSAT, MSE, and SINCGARS) provides the division commander with the ability to communicate with his divisional forces, adjacent forces, and his higher headquarters. Additionally, these systems by themselves, and through interface with other systems, can provide the commander with theater and global communications support.

The commander begins to establish his CCIR during his mission analysis as he identifies what he expects to be the most important information he will need. The CCIR provide the commander with the necessary information he needs to support his decision making process. Not only will the CCIR change with each new mission, and possibly with each new phase of the operation, but CCIR will differ from commander to commander. In order for subordinates and staff to understand the CCIR requirements, he must introduce them during operation orders and during rehearsals. The staff wargaming the various courses of action, may also identify CCIR for the commander that will support

timely decisionmaking by the commander. Ultimately it is the commander who decides what the CCIR will be. He ensures it is known throughout his force.

The amount of information generated by a division operating on the battlefield can easily overwhelm the command and control system designed to support that operation. The CCIR help prioritize what information is most urgent, and by that, reduce the amount of information transmitted. Even because of the CCIR being enacted and followed, the command group can still receive an overabundance of information for the commander. It is because of this potential information overload that the personnel operating in the command group must filter the information that the commander receives. They accomplish this by understanding his CCIR, but more importantly by having worked with the commander and knowing "how he operates."

The command group crew or "staff" knows the critical events the commander focuses on during combat. The physical closeness of the command group almost ensures that if a member is not personally operating on a radio or telephone, he is probably in position to eavesdrop on the person who is. Because of this, much of the information the commander receives is through an indirect osmosis by listening to the conversations ongoing in the command group. He also can move away from one source of information to another, such as another operator or the map board.

Through all this activity, the commander cannot be at all places at once within the command group to listen in to the flow of information as it comes in. Because of this, the command group crew must present the commander with the information they perceive he needs to know. Again, this process develops over time through rehearsals and practice, and some mistakes will occasionally occur. The personnel within the command group must develop a sense for what the commander is looking for and wants to know. This applies to receiving information, but also to requesting information.

The ability of the commander to visually see the information and comprehend it in relationship to other information can assist his thought process considerably. The situation map, maintained by the G3 and G2 representatives, is one tool to present that information to the commander without much verbiage. It also presents the commander with the big picture, from which he can decide himself what is critical at that time.

The commander still goes forward to see the battlefield and make his own assessments of the situation. This can be done through personal reconnaissance or just as importantly, through face-to-face contact with his subordinates. The assessment of a given situation by his subordinate commanders provides the division commander with the added benefit of their opinions, experience, and their recommendations.

This highlights the importance of the command group providing mobility to the commander. It does not dictate that mobility come only in the form of ground transportation. It does imply, however, the need for aerial transportation to move the commander quickly around the division battlefield. Just as important is the ability of aerial transportation to provide the division commander access to the corps commander, whether at the corps command group or TAC CP.

The commander must constantly know his own location and that of his forces. He must be able to quickly move to new locations, find key commanders, and make fast decisions. He does not have time to wander around the battlefield looking for someone or some place. The GPS enhances the commander's ability to navigate on the battlefield, confirm locations, and exercise better command and control. It also supports fratricide prevention by amplifying situational awareness for the commander.

The idea of telescopic antennas attached to C2 vehicles is not new. The benefit of such an arrangement is increased setup time, faster communication linkup, decreased displacement time, and fewer moving parts within the command group. Auxiliary Power Units (APUs), or small generators, allow the command group vehicle systems to function

without the vehicle engines running. Consideration must be given to load plans for APUs and/or generators, and the room they take up. Some available versions are small, quiet, and easily transportable. Power cables connecting the energy source to the vehicles, and adapters, complete the system.

The map boards used in the command group should be functional inside and outside the vehicle. This implies a map board that is mobile, requires fixed unit symbol markers, and can be updated with new map sheets as the division area of operations and graphics change. In extended offensive zones of operation, 1:50,000 scale maps are used then rapidly discarded as the division continues to move. The map board used needs to be easily adjusted and updated with new graphics and map sheets. The corps 1:250,000 scale map board with graphics should also be present.

A FAX machine provides the commander the ability to receive a hard copy of any message traffic he may require. The FAX machine affords him the ability to send any updates to operational graphic sketches he may want to transmit. The function this FAX machine supports is more important than the machine itself. The function of transmitting and producing hard copy messages can now be accomplished without a FAX. A computer, with attached printer, operating through a data-transmitting capable communication system, can just as easily produce the same products.

M577 vehicles cannot move at the same pace as fighting vehicles during combat operations. They provide a good working environment for C2, but cannot maintain the same tempo as other armored vehicles. Additionally, the M577 has a distinctive physical signature compared to other armored vehicles on the battlefield. M113 vehicles are an improvement in mobility and speed, but do not provide a great deal of armor protection or firepower. The M2 BFV, configured for C2, offers communications, C2 capabilities, firepower, and greater armor protection than the M577 and the M113.

Communications, mobility, and protection are three primary functions the command group provides the commander. The forward location of the command group magnifies the importance of these functions.

Surveys

The purpose of the survey was to confirm or refute the information gathered and analyzed from the first two areas of research, (historical and doctrinal reviews); to ensure that the research focussed on the important issues concerning a command group, (based in part from survey responses and comments); and to provide a forum to receive additional data on the study topic. Of the original twenty-two general officers in the population, fifteen respondents have returned their survey to date.

The intent behind the format of the survey was to facilitate easy, rapid answering of the questions. In reviewing the data presented in the following tables, one will note that not all of the respondents filled out each question completely. It is important to recognize this as not all the tables will appear complete. In some instances, the respondent would provide only two or three responses to a question requesting eight or nine priorities. A valuable lesson learned from this is that the instructions that accompany a survey must be complete, easily understood, and leave no room for misinterpretation.

Chapter 3 briefly touched on the "number crunching" side of the data analysis. Some of the surveys returned gave equal value to questions that requested a graduated evaluation of possible responses. In these instances, the figures were added, then divided by two to allow the subsequent values to fall in line numerically. As an example, a respondent might generate two each "3's" for answers that would otherwise have earned a 3.5 and a four. For the sake of the survey, in attempting to determine the mean of the responses, an adjusted value of the two answers was 3.5.

Some respondents did not fill in answers to a few of the questions but instead wrote a note to the side saying that the answer would be totally dependent upon the situation. The initial attempt of the survey to avoid that type of response was contained in the administrative guidance stating that the survey "recognized that mission, enemy, terrain, troops and time ultimately shape" the command group. The instructions sought to clarify the situation by stating the questions applied to a "conventional (meaning non-nuclear, non-chemical), high intensity conflict (severity of the situation merits the introduction of substantial forces into the operation) scenario." Although this probably provided enough general guidance for most of the questions, it did not provide sufficient detail for some respondents to answer the questions completely. This diversity is acceptable for this study. The analysis generated from this situation determined that further guidance, in the form of more detail, would limit the scope of possible answers the officer might consider. The intent behind the research question is to form a "model" from which adjustments could be made to account for unique mission characteristics. The intent was not to form a command group perfect for a specific situation.

Recognizing that the survey response, in relation to such a small audience, did not support statistical analysis, but rather descriptive analysis, this researcher chose to analyze trends that appeared from the surveys rather than look for hard, statistical conclusions. With only fifteen of twenty-two respondents returning the survey, there was not enough of a population profile to generate sufficient data for statistical analysis. There was, however, enough of a response to generate some interpretations based on similar responses and trends from the surveys returned. Based on the diversity of the answers, these interpretations do not represent a consensus or a majority.

The format this analysis will follow examines the responses to the questions individually, interprets the data, and clarifies any unusual responses. The survey questions are in Appendix D, while the survey data tables are in Appendix F (APP F).

APP F, Question #1 and table. All fifteen respondents answered affirmatively to this question. This means that these heavy division commanders do use or have used some kind of command group. The responses do not specify the extent of this use, nor is the number of times the commander operated from his command group provided.

APP F, Question #1 and table. Four of the fifteen respondents answered affirmatively to this question. Considering that only five heavy divisions participated in combat operations within the 1990 time limitation set by this study, this number represents an 80% response of those commanders who fought in DS/DS. This is a substantial response. This researcher interprets this to mean that the potential value of this survey and study was perceived as high by these general officers. The comments that accompanied the returned surveys substantiate that assessment.

Two of the eight respondents who registered a "no" answer to question #2 did show that they served as the Assistant Division Commander, Maneuver, or ADC (M), during combat operations within a heavy division. This point further indicates that they served out of the TAC CP during combat. One respondent replied that although he had not commanded a division during combat, but was commanding one now, that he had operated from an ACR command group during combat.

Responses to questions #1 and #2 indicate that all fifteen respondents are familiar with command group operations. Additionally, seven of the fifteen respondents showed a familiarity of division or ACR combat operations. The assessment made from this is that almost half of the fifteen respondents answered the survey questions based at least partially on their combat experiences. The significance of this observation is that almost half of the respondents have experience operating within a division-level command and control structure during combat.

APP F, Question #3 and table. This question sought to determine the location that commanders either did spend most of their time during combat or would plan to

spend their time. Six of the respondents chose the command group (ground) as their first choice, with five of the six choosing the command group (air) as their second choice. One of these six (#1) said that he would spend approximately 35% of his time in the command group (ground) and approximately 40% of his time in the command group air. One respondent chose the command group (air) first, with the command group (ground) as this second choice. One respondent chose to split his first choice of location between the command group (ground) and the division main CP. Three chose the division TAC CP as their first choice, with the division main or command group as their second choice. And two chose the division main CP as their first choice. Two general officers showed only one planned location for combat, one the division main CP and the other the command group (ground).

One-half of the combat veteran division commanders said they were at the command group (ground) most of the time during combat. Three out of four, or 75 percent, indicated the command group (ground and/or air combination) as their most likely location. The majority of the fifteen respondents chose the command group (ground and/or air) as their most likely place during combat. The combat division commanders chose the command group ground, then air, then TAC CP in priority, while the non-combat division commanders chose the MAIN CP first, with the TAC CP and command group ground equally rated, and the command group air next. The overall survey population chose the command group ground, . CP, TAC CP, command group air, then REAR CP in that order.

This data generated the following perception, based on the respondents answers: most commanders fought or intend to fight their divisions from their command groups (either ground or air). One significant point Chapter 3 briefly addressed concerns the constructual clarity of question #3.

An interview with one respondent after his survey completion indicated that his understanding of the meaning behind "combat operations" was different from that intended for the question. The intent behind the survey meaning was while actual contact and fighting with the enemy were ongoing, but only during this time. The respondent's interpretation was that combat operations included preparation for contact, plan development, movement to attack positions (in an offensive scenario), actual contact, and the post-contact period as well. This respondent explained that interpretation during an interview and illustrated how that also affected questions later in his survey. Part of this rationale merits mention here. During the preparation for contact phases he was forward at the TAC CP, well forward but also planning for operations. The introduction of a G3 planner from the division main into the TAC CP helped the planning process. The respondent said that during actual fighting with the enemy he would probably be forward in either the air or ground command group, with frequent stops at the TAC CP.

This observation highlights the realization that even with the validity checks performed before survey distribution, the potential for misinterpretation still existed. In this case, that potential appeared as an inaccurate representation among the data. The point here is that the difference of perception between this researcher and the respondent was identified only after a follow-up question to the original survey clarified the issue. The concern here is that other differences of perception might have occurred through the course of the survey.

This underscores the need for clarity within the survey. A lesson learned is that where potential exists for misunderstanding or misinterpretation to occur, it often does. The effort expended to clarify possible ambiguities, by providing a short definition of some terms, is well spent if it precludes such a difference of perception from occurring.

One interpretation to offer for those commanders who chose the MAIN CP as their first or second most preferred position is that some division commanders feel they

can best influence the fight through the deep battle. The division main CP fights the deep battle, while the ADC (M) coordinates the close battle from the TAC CP. All the respondents chose the division rear CP as their last choice or did not consider it at all. This generated the interpretation that the commanders do not intend to fight from the rear CP.

APP F, Question #4 and table. Once the initial questions exposed the respondents to the survey format and established the sample profile in terms of combat experience, question #4 focussed their attention on the functions that the command group must support. Defining the functions that the command group must support should come first before attempting to design the command group structure. The saying "Form follows function," makes sense in seeking to develop a command group model.

The functions listed in question # 4 represent a partial consolidation of those command post functions listed in FM 100-15, Corps Operations, FM 101-5, Command and Control for Commanders and Staff, and the preliminary conclusions drawn from the historical review. The definitions attached to each function are subjective, but based on descriptions included in these manuals. These functions, and those listed in question #5, serve to define the role of the command group for the commander. Chapter 5, Conclusions and Recommendations, will address this point.

Nine of the respondents chose communication as the number one operational function a command group must support. Two respondents chose it second, and four chose it third. "Information" fell closely behind "communications" with three first choices, seven second choices, one third, and three fourth choices. Next in overall priority came "access" to subordinate commanders, "qualified personnel," and then the ability to conduct "continuous operations."

Significant to the findings was a distinction the combat division commanders made by listing "speed" as their second highest priority for operational factors. This

contrasts considerably with the rest of the population. The analysis of this point is that combat experienced division commanders recognize the importance of speed in keeping up with the force. This is particularly true in offensive operations, but possibly not so much in the defense.

These are not clear cut statistical standings, but rather represent the overall trends. Many comments included with this portion of the survey suggested that "communications" and "information" are very closely appraised in value. While "communications" strives to secure that link back into the command and control structure, "information" implies a degree of analysis to the message coming over that communications link. The high ranking for "communication" and "information" generated the interpretation that these are the two most important operational functions that support the commander in exercising battle command. The data generated by the low ranking of access to physically see the battlefield means that commanders can exercise battle command independent of "directly" viewing the battlefield, but rather by having a "vision" of the total battlefield. This interpretation is based on the dimensions of a division's battlefield and on the analysis that through communications providing information to the commander, he can visualize significant battlefield activities, while not physically seeing them all. Respondent #1 listed "survivability" as the "other" under his #4 response. Question #5 addresses this function.

APP F, Question #5 and table. Eleven of the fifteen respondents listed mobility as the most important survivability factor a command group must support. This represents over seventy-three percent of the respondents. The commanders listed "mobility" as their number one choice. "Armor protection," followed by "signature," then "redundancy," occupied the next highest assessments, respectively. The high rankings of these functions, and the significant low ranking of the "limited offensive and defensive capability" function generate the interpretation that commanders view their best defense as

passive in nature when it comes to the command group. While they recognize the need for backup systems through redundancy, and security through low signatures, they also recognize the potential threat of enemy contact and consequently identify armor protection as a high requirement. Signature assessment generally ranked high among the respondents. This generated the perception that not only the typical qualities of signature are important, but also in operating with vehicles of similar appearance.

The significant difference between combat and non-combat commanders falls under the assessment of "austerity." Combat commanders hold this factor, overall, in higher priority than the rest of the population. The survivability factor of "austerity" could greatly enhance a command group's ability to support the operational factor of "speed" during operations. The survey described "austerity" as meaning "less is better than more." This might imply a more direct input-oriented structure for passing information to the commander. With fewer moving parts in the command group, the information channels are closer to the commander.

APP F, Question #6 and table. Question #6 sought to expand on the anticipated strong overall ranking of communications and information from question #4. Based on the preliminary research done on historical and doctrinal review, the sequencing of question #6 after #4 sought to capture the commander's initial focus on communication and information flow and carry it over to identifying what his CCIR would be. The listing of possible CCIR was drawn from ST 100-9 and FM 101-5. Both manuals emphasize that CCIR are very situationally dependent and that the commander must personally look ahead to the fight and decide what he anticipates will be his CCIR. The ranking of CCIR serves as a link in identifying specific systems to support transfer of that information.

"Enemy activity/situation" was the highest overall rated information requirement with nine of fifteen officers listing it first. Very closely behind was "Friendly activities/ main body/security forces." Next in ranking was "Friendly combat system status,"

followed by "Friendly activities deep," then "Intelligence summary." This is a reflection of how our Army trains leaders to think. The first part of an Operations Order (OPORD) begins with the enemy situation. Even when in the offense and while maintaining the initiative, a commander always considers the enemy in his planning and decision making process.

Among combat commanders, the group was almost split between ranking the enemy versus the friendly situation as number one. The only significant difference found between combat and non-combat division commanders was the importance combat commanders placed on adjacent unit status.

APP F, Question #7 and table. Continuing to build on the communications emphasis and the transfer of information, question #7 sought to translate communications requirements into specific systems in considering currently available equipment. Defining whether the communications systems noted would support internal division networks, or external networks (i.e., higher command), would clarify this question. Seven commanders chose FM as their first choice, while three chose MSE first. Three commanders chose single-channel TACSAT (satellite communications) as their first choice. Overall, the data generated the perception that FM was rated highest, MSE second, single-channel TACSAT third, and multi channel TACSAT fourth.

On the subject of communications systems there does exist a difference in ranking between the combat and non-combat division commanders. The combat division commanders preferred the single-channel TACSAT and FM systems over most of the others, based on number one rankings. The non-combat commanders preferred FM and MSE over the other systems.

This data generates the perception that commanders have their own preferences, but that FM is still the main fall-back system. The rankings do not significantly differentiate between MSE and FM overall, in that the dispersion of values assessed for

the systems did not vary that greatly for the highest rated systems. From personal experience, MSE is not able to stay up on a offensively mobile battlefield. None of the combat division commanders listed MSE first, although one listed it second. It is very important to note that not all the divisions represented by this population had then, or have now, all the systems listed in this survey question. Respondents completed this survey based on their experiences as heavy division commanders. Their command tour may not have included operations with all of the communication systems listed. Therefore, the commanders may not have had a "hands-on" historical basis from which to evaluate all these systems.

APP F, Question #8 and table. This question sought to determine which navigation systems commadners had the most confidence in. Ten commanders listed GPS as their number one choice. Four other commanders listed GPS second. Of the four listing GPS second, three of them listed the MAGELLAN system first. Enhanced Position Location Reporting System (EPLRS) and Inter Vehicular Information System (IVIS) were the other two systems listed first. This data shows a clear preference for the satellite supported systems of GPS and MAGELLAN. The strengths of these systems include mobile operations capability, all weather reliability, vehicle supported energy sources, and an extremely high degree of accuracy. This data also showed trends of EPLRS listed third overall, with IVIS or an IVIS-like system ranked fourth. The data illustrates a clear preference for the GPS system.

APP F, Question #9 and table. Question nine sought to determine what kind of local security support commanders felt adequate for a command group. The data from this question shows a strong trend for some type of dismounted security capability at the command group. Although all the respondents agreed that an Infantry platoon would be too large, five commanders showed a desire for a squad-size force. All the commanders, except one, agreed that the local security provided by organic personnel, to include vehicle

drivers, was necessary. One respondent chose not to evaluate each option separately and instead said that the decision would be dependent on the situation. Of the remaining three combat commanders, all three said "yes" to having an M1 and/or M2 as part of the command group. All the respondents said "yes" to having one or more M2 (s) as part of the command group for local security purposes. Two of the combat commanders said "no" to having Military Police (MPs) at the command group. Two commanders expressed no other local security needed other than that listed by stating "no" in the other block.

This data means that a mixture of some kind of dismounted, and mounted, local security capability is necessary at the command group. As pointed out by respondent #1, the type and amount of local security would be dependent on the situation.

APP F, Question #10 and table. Looking at another functional requirement that commanders face, questions #10 and #11 looked at the options that might be available to a commander to conduct and sustain continuous operations from the command group. Eleven of the respondents said that they anticipated conducting continuous operations within their command group. All the combat experienced division commanders said they anticipated continuous operations within their command group. Comments included with survey responses to question #10 reinforced the notion that the situation would affect the decision whether to operate continuously from the command group. This researcher found no doctrinal definition of "continuous operations" in terms of hours, so 96 hours was offered as being equivalent. This figure was arrived at after referring to the SEP 1990 edition of CALL, Newsletter: Winning in the Desert II, No 90-8, which states that after 5 to 6 days of limited sleep, mental performance declines significantly. Ninety-six hours represents four days and begins to near that degraded window. The significant difference found between combat and non-combat commanders is that combat-commanders recognize the requirement for continuous operations from the command group.

APP F, Question #11 and table. Question #11 seeks further information from the commanders on just how to sustain continuous operation given the limited personnel strengths typically associated with the command group. One respondent said that there was "no easy solution," but with four hours of sleep a day a command group could maintain its combat functions. That was the SOP for his command group in combat.

Although the instructions within the survey instructed the respondents not to answer question #11 if they answered "no" to #10, two respondents did anyway and their responses are included. One respondent who did respond with a "yes" to question #10, chose not to provide any answers for question #11. Five commanders listed "rotate with TAC CP personnel" as their number one choice. Five respondents recorded "no easy solution" as their most favorable choice. "Maintain enough to rotate within the command group" was the third most chosen option. Three of the four combat commanders chose "no easy solution" as their first choice, the other respondent choosing it as his second choice.

The trend observed from this data suggests that commanders recognize that to move fast and stay light, they must reduce total personnel. The ability to sustain continuous operations can be addressed by different options, but in the end none of them are easy. The only significant interpretation gained from this question is that combat commanders recognize no easy solution and plan to rotate internally where and when possible.

APP F, Question #12 and table. Question #12 sought to take those functional requirements addressed, along with equipment, and apply them to some vehicular platform from which the commanders can operate. Again, those systems listed are currently fielded and available. Two respondents chose the new C2V (Command and Control Vehicle) as the preferred vehicle under "other." At the time of survey distribution, the C2V had not been fielded. Five commanders chose the M2/M3 series vehicle as their first choice, three

chose the M113 series as their number one pick, (one split between the two), three chose the UH-60 aircraft first, and two chose the M1 tank. Commanders said that the M1/M2/M3 would require modifications to support command and control operations. These modifications would include radio reconfiguration, map board installation, enhanced antennas, and crew compartment reconfiguration to support command and control. Overall, the UH-60 was narrowly chosen over the M2/M3 series vehicle as most preferred by ranking. The M113 series vehicle came in third. The combat commanders all chose different vehicles as their number one choice. This reflects diversity in individual preference, personal experience, and mission requirements. There was no substantial difference between combat and noncombat commanders on this question.

Analyzing the survey data was not the only source of information during this process, several important lessons also came out of the survey process. The following is a brief summary of the lessons learned from the survey process: (1) Start the survey process as soon as possible; (2) check the survey questions' validity through preliminary "trial run" tests, ideally using personnel similar to those of your target population; (3) maintain a system to track the mailing of the surveys, telephonic follow-ups to verify receipt of the survey, receipt of the returned surveys, and a working version spread sheet on which to record survey responses; (4) specify exactly how the respondents should fill out the survey questions to ensure completeness; (5) do not break the survey questions apart over two pages; (6) print surveys on colored paper (this causes it to stand out and increases the likelihood that it will not be thrown away); (7) develop a number system to identify each respondent from the roster, attach this number somewhere on the survey mailed to ensure identification of the returned survey source (one survey received had no identification for the originator); (9) use letterhead stationery for the cover letter accompanying the survey; (10) limit the cover letter to one page and include a business hours telephone number for questions; (11) allow space on the survey for additional comments; (12) statistical analysis

of survey data requires a clearly defined plan for how the data will be analyzed and presented, how it will support the study as a whole, and what actions will be taken in the event that a total return does not occur; and lastly, (13) conduct a thorough check to ensure that no other surveys addressing your topic exist.

The survey data provided the basis for descriptive analysis. This analysis identifies trends rather than statistical interpretation. The lack of consistent answering, diversity of comments accompanying the answers, and demonstrated differences in perception supported the descriptive analysis method.

The data generated from the surveys confirmed the earlier research regarding the importance of communications and information in assisting the commander exercising battle command. This supports the functions identified in the historical review. The survey responses did, however, refute the historical priority of physically seeing the battlefield as imperative to the commander's ability to command. The commanders' comments showed strong support for organizing the command group based upon the situational requirements. This supports the doctrinal idea of purposely leaving the command group undefined in structure and procedure in order to conform to the commander's functional requirements.

The survey did not attempt to define the actual personnel makeup of the command group by function or duty position. Comments from the respondents suggest this was a shortcoming of the survey. Many comments from the survey population generated various personnel configurations. Habitually, the general theme suggested personnel making up the command group include: the division G3 and/or a deputy, the division G2 or a deputy, one to two Battle Captains or senior operations sergeants to support the G3 and/or G2, the Fire Support Coordinator (FSCOORD) or the deputy, an ALO, the aide-de-camp, in some instances the ADC (M), and one respondent recommended a G3 plans officer.

In the area of communications, several comments indicated that the division close fight, once it was underway, was primarily an FM fight. The need for the commander to have reliable communications available to him in the air (airborne command group) also appeared frequently.

The overall assessment of the survey responses indicated that the study and the survey were, for the most part, addressing the important issues concerning the command group. Also assessed from the survey comments was a lack of willingness to "standardize" the command group, which is not the intent of this study. Commanders repeatedly reaffirmed the need to adjust to the situational requirements unique to any given scenario. Some commanders did comment that standardization of CPs was, however, necessary and prudent.

The last purpose of the survey to address was the degree of success experienced in providing another forum from which to acquire additional command group information. The survey comment sheet, question #13, produced substantial feedback to command group issues. The comments respondents included with the surveys are in Appendix G.

Interviews

The purpose of the interviews was to collect information about command group operations from personnel who had served in a command group. It also afforded an opportunity for follow up discussion with some general officers who had taken part in the survey process. Although the initial focus was on the command group, it often shifted. Other areas discussed included division command and control, combat operations, techniques for improvement, and other related topics. The essential points brought out in each interview follow in condensed summary format. The comments follow the chronological sequence of the interviews.

1. MG Jared L. Bates, Commanding General, 2d Armored Division.[25] The main points MG Bates made concerned the function of the command group tying the commander in with the division's C2 networks. He also emphasized the importance of the commander not losing sight of the deep battle. He advanced the idea of extending the division's C2 capabilities through a forward CP, or assault CP, especially in contingency operations. The primary function of the command group he described as providing information to the commander while enabling him to move forward with protection.

2. LTG Ronald H. Griffith, The Army Inspector General, (former Commanding General, 1st Armored Division, during Desert Shield/Desert Storm).[26] LTG Griffith noted that the opportunities for division commanders to operate and train from a command group are rare. He pointed out that REFORGER (Return of Forces to Germany) exercises used to provide that chance to division commanders, but not anymore. He also said that commanders operating in Korea might enjoy the opportunity, but that commanders based in the continental United States (CONUS) often would not. This is significant when considering the state of readiness commanders must maintain in light of force projection requirements.

The most significant problem area LTG Griffith identified for the command group was long-range communications while on the move. He also said that the more preparation a unit did before executing a mission, the fewer requirements for the commander to actively participate in the close fight. He emphasized the degree of preparedness his division had obtained prior to attacking during Desert Storm. He said his ability to focus on the deep battle while his ADC (M) orchestrated the close battle was due to their readiness posture. He noted that in a scenario where less rehearsals, backbriefs, and detailed planning may have occurred, the division commander might be more intimately involved with the close fight. Hence, the commander's active role within the division's C2 plan is also affected by situational considerations.

LTG Griffith stated that his command group included his G3 and his G2 during combat. He also said that his aide played an important role as his "scribe" in keeping the TAC CP and others informed of his (the commander's) battle field decisions. This was especially true regarding decisions made while speaking face-to-face with brigade commanders. The last point to cover was his perception that the idea of the TAC-MAIN-REAR CP organization structure is inadequate for offensive operations. He suggested the possibility of having two identical CPs to provide an "on-the-move" C2 capability within the division. One CP would plan, while the other controlled the fight. The current command group concept begins to address that idea.

3. LTC Keith Alexander, former G2 during Desert Shield/Desert Storm, 1st Armored Division.[27] LTC Alexander described the mass of information that his division received during the war and the system they used to organize, analyze and disseminate that information. Essentially a data base was developed at the DMAIN where users within the system could access the data through a KEYWORD SEARCH function. As the division G2 he could quickly obtain updated information on the enemy situation through a computer link, operating through a communications network (FM), provided to him on a lap-top computer. This system was responsive on the ground, but did not work while flying. LTC Alexander believes that the division G2 should be wherever his commander is located during combat. He also noted the importance of the CCIR in facilitating information prioritization and transfer.

4. CPT Pat Frakes, Combined Arms and Services Staff School (CAS3) student, former communications officer for the Assault Command Post (ACP), 24th Infantry Division, Mechanized (M), during Desert Shield/Desert Storm.[28] CPT Frakes provided extremely detailed information on how the communications systems to support an ACP are organized and operated, and also the structure of the 24th ID (M)'s ACP. The 24th ID (M) used an internal division TACSAT system as a command communications network.

This system proved to be very responsive to the commander's needs, providing an enhanced capability for extended ranges throughout the division area of operations. A TRACK 145, mounted in the bed of a cargo Heavy Expanded Mobility Tactical Truck (HEMTT), provided the ACP with reliable PCM (Pulse Code Modulation) communications throughout the operation. The robust mobility of the HEMTT allowed it to stay up with the ACP. This system provided five phones into the ACP: One for the G2; one for G3 voice communications and one for FAX; one for Fire Support; and one for the commander. The FAX was used extensively in producing Intelligence Summaries (INTSUMS) for the ACP.

5. LTG John H. Tilelli, Jr., Deputy Chief of Staff for Operations and Plans, U.S. Army, (former Commanding General, 1st Cavalry Division during Desert Shield and Desert Storm).[29] LTG Tilleli stated that the first significant point to establish for this type study is the role of the command group within the division's command and control system. The secondary questions of personnel, equipment, and procedures would then evolve from that initial role determination. He underscored the importance of seeing subordinate commanders in obtaining an accurate assessment of the situation. Responsive communications are an absolute necessity for the commander to be effective. LTG Tilelli emphasized the significant role that CCIR play in helping the commander obtain critical information. His Commander's Citical Information Requirements were posted in the DTAC and the DMAIN.

Summary

The significant points produced by the interviews follow:

1. The division commander must define the role of the command group within the division command and control system.

2. Communications is the most important function a command group provides.

3. TACSAT is a proven performer and a preferred communications system.

4. Face-to-face capability with subordinate commanders is essential.

5. The mobility requirement is crucial for the commander to see the battlefield and meet with subordinate commanders.

6. Visualizing the battlefield includes the deep operation, present and future.

7. The primary personnel support within the command group should include a G3 officer, G2 officer, Fire support officer, operations NCOs, and signal support, as a minimum. The commander and the situation dictate augmentation.

8. The command group operates best as a lean organization. This helps make for fast setup, displacement, and emphasizes a pro-active operations attitude among the crew.

9. The Commander's Critical Information Requirements are important factors to streamline information flow and management.

10. The commander needs the same level of communications and mobility support in his Air Command Group as he does on the ground.

11. A lap-top computer that interfaces through secure communications to a data base is small, quick, light, and responsive.

12. The command group should be a relatively self-contained organization capable of limited periods of continuous operations.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to present the conclusions that the research produced. The discoveries made from investigating the research topic did not always address the original thesis question, which was: If a heavy division had to go to war today, (1) What should the command group structure be? (2) What functional requirements should it support? and (3) How would it operate? What did come from exposure to areas somewhat detached from the original topic was a better perspective from which to evaluate the data found and applying its value to the complete study. The topic of exercising command during combat operations receives considerable attention in the military environment. What does not receive much attention are the mechanisms through which we make that art of command take place.

The idea behind this study was to develop a "model" command group, composed of currently available systems, from which armored and mechanized infantry division commanders could fight during combat operations. The intent behind the research question was to translate that purpose into a working command group. Commanders could adjust their final product from the basic command group this study recommends. The intent was not to standardize the command group. The goal was to offer a starting point that addressed most functional requirements a command group must support. The conclusions that follow represent discoveries that apply to the research question and to the research process. The recommendations at the end of this chapter highlight some areas that merit further review.

Conclusions

The research question should have read: If a heavy division had to go to combat today, (1) What role would the command group serve within the division command and control system? (2) What functional requirements should it support? and (3) What structure should it operate under? This conclusion is based on the frustrations of trying to define the command group by initially looking only at the command group itself. That approach did not work. The process that does work is to first identify and define the division command and control structure, which FM 71-100 addresses. What FM 71-100 does not address is exactly how the command group will operate in terms of battlefield command and control responsibilities. What does doctrine expect the command group to contribute to the battlefield? The answer: Whatever the division commander wants it to contribute.

If the research question had been structured as it is above, the focus of the research would have been much more effective at the onset of this study. Before you can define an organization or facility, you must decide first how it fits into the larger structure.

The command group serves as the division commander's access channel into the division command and control system, and consequently into the fight. The structure he organizes his division command and control system into will assist him in his ability to exercise command. The command group serves to "plug him into" that system and allows him to influence the fight in whatever way he chooses. As this study showed, diversity in organizing division C2 structures was the rule, not the exception, during DS/DS. We cannot expect to fight the next war like we did in Southwest Asia (SWA), but we cannot afford to ignore the lessons learned and exploit the knowledge gained. The command group may orchestrate the deep battle as the commander becomes aware of new developments. It may also commit forces to the rear to address rear area threats. The command group may orchestrate the close fight through assessing changing situations that

merit a change in the main effort. These responsibilities are further defined by concluding that the command group's role during combat is to serve as the commander's eyes, ears, legs, and voice in fighting the battle.

The command group allows him to "see" the battlefield by updating him on situational developments. It allows him to "hear" the information that develops during the fight. It provides him the ability to "move" around the battlefield to where his presence is most necessary. And the command group furnishes the commander with the means to commit forces that can "strike" at the enemy. The command group allows the commander the ability to shift his focus and reorient his priorities across the full spectrum of the battlefield.

The most important functional requirements a command group provides are: communications, information, mobility, and protection. This conclusion is based on survey findings and doctrinal research. The commander makes decisions. He makes decisions during combat, based on what he knows, that influence the division's fight. The decisions enable the division to accomplish its mission. The command group, within the role just mentioned, helps the commander in his decision making process. That is what the division's C2 structure is charged with doing. But it is at the command group where many of those critical decisions, reserved just for the commander, are made. The commander must have knowledge of the battlefield to make decisions. Communications provide him that link in receiving details about the fight. The people within the command group help the commander in analyzing and evaluating that information. More important, the communications capability of the command group allows the commander to broadcast his decisions to the force.

Historically, to include our war in SWA, commanders have moved to the front to gain a first hand perspective on the battle. They have also found that their attention cannot focus only on the front. The command group, whether air or ground, must provide

the commander access to the front, to the division main battle area, to the division rear area, and to his higher commander's headquarters. The commander, in order to make decisions, must have access to wherever his focus leads him.

The command group structure will adjust, based on situational requirements, commander's preferences, and available equipment and personnel. In considering those functions necessary to support the commander and having reviewed equipment currently available, the following recommendation represents a "model" command group. This conclusion is based on a compilation of the research material gathered for this study.

The personnel to make up the command group should include: The G3, or his deputy for operations; the deputy G2 from the current operations cell of the DMAIN, with an MI CPT to assist him; the deputy FSCOORD, with the ability to bring the FSCOORD forward on short notice; an ALO to coordinate tactical air support; two battle captains to monitor radios, update maps and transmit information; two senior operations sergeants to support continuous operations and serve as track commanders; signal officer and at least one signal team member to maintain communications; a combat lifesaver (who could be one of the track drivers, or preferably a gunner); a vehicle mechanic who could also serve as a driver, with tool box; two MP teams to provide local security and reconnaissance capability: and the commander's aide to orchestrate his movement support on the battlefield, serve as a battle captain, and serve as a "scribe" for the commander.

This basis for this personnel listing come from the commander's need for well-informed staff members, who know the plan and how the commander wants to see it executed. Additionally, they are senior enough to appreciate the "big picture" the commander must focus on. Additionally, the personnel structure provides a limited degree of self-sustainment, keying on continuous operations as a requirement.

The equipment (ground mode) to support the command group would consist of: Two M2 BFVs to serve as the primary C2 platform, adjusted to include enhanced

communications equipment and C2 space inside the tracks; one M113 for the ALO; and two MP hardtop M998 (HMMWVs) to serve as "scouts" for the command group during movement, provide local security, and assist with any prisoners of war (POWs). The M2s also provide mobility and protection. Other equipment would include: HONDA generators to provide continuous, quiet stationary electrical power; an overhead tarp structure (custom fit a Standard Integrated Command Post System -SICPS) using camouflage net poles, which would allow three primary C2 vehicles to dismount map boards; and at least one field desk for radio remotes. Some kind of bench seat is necessary for at least three personnel to sit (the commander, a G3 representative, and a G2 representative) and view the operation maps. The minimal personal equipment for the crew should be mounted on an enhanced external carrying "rack," which may require welding. Attached to the sides of the vehicles, this "rack" would leave the interior for C2 functions only. The M998s for the commander, and primary staff, would follow to the rear when the situation allowed, to provide redundant communications.

Each BFV comes equipped with SINCGARS radios. The priority for radio allocation would go to monitoring Division Command (DIV CMD), Division Fires Support (DIV FS), Division Operations and Intelligence (DIV O&I), Corps Command (CORPS CMD), and the main effort brigade. Radio remotes would be located in the map board area. A single channel TACSAT, with high gain antennas, would provide the commander with satellite communications. The VSC-7, with vehicle power source, would be the preferred choice. Each track would be equipped with MSE, using an MSRT (Mobile Subscriber Radiotelephone Terminal). Each track would have a FAX or FAX-like capability to produce hard copy messages. The senior track commander would have a PRC-77 radio to monitor the internal net of the command group vehicles, especially when stationary with local security dispatched around the area. This allows him an internal net and a dismounted capability while checking the perimeter. If the command group receives

augmentation in tanks or more BFVs, this internal net is critical for coordinating local security, movement, and internal operations to the command group. Hand-held Motorola radios could also support the local security communications requirement.

As previously noted, the command group also supports the commander while operating in the air. The following conclusion for an aerial command group is based on survey comments, interviews, and personal experience. The UH-60 aircraft is the preferred helicopter for the aerial command group. It would be equipped with a command radio console. This would provide the aircraft a SATCOM capability (for both ground and air operations), and at least three FM nets. The commander would then have the minimal necessary communications networks available to him. (This may require the aide to carry a man-pack SINCGARS radio). A map board replaces one row of seats in the back of the aircraft, but can function outside the aircraft as well. The commander and his party are hooked up with improvised (longer than usual) extension cords to the command console via a selection switch the commander uses to change the radio he operates on. A ground generator, which can be dismounted and operated, would provide a stationary power source. This would preclude the aircraft from having to continuously operate while on the ground. The FM radios would function through external antennas (OE-254s) which are set up on either side of the aircraft and secured with guide lines.

In both the ground and air version of the command group, a GPS would serve as the primary navigation system. In the ground mode it would run off the vehicle batteries with an external antenna attached to the outside of the track. The same antenna setup wold function in the aircraft, but would require a battery operated GPS. In this instance, the command aircraft crew would maintain an adequate supply of GPS batteries.

Although not resourced for an additional aircraft, the command group would have a secondary aircraft that would mirror the first. This second aircraft would provide

redundancy for unexpected mechanical failures, backup radio support, and enhanced security for the command group.

The command group locates near the TAC CP during initial deployment. As hostilities draw close, the command group facility moves forward near the main effort. The commander's aircraft(s) remains wherever he is and can fly him forward from the TAC CP to the command group facility once established. The command group operates as an "extension cord" of the division command and control system. If the command group serves to support displacement of the TAC CP and take over the close fight, it can do that function. But it loses some of its mobility capability, in this role, which it must have to support the commander. As long as the commander retains the ability to jump in an aircraft or a track and go where he needs to, the switch can occur.

The only secondary question that still is unanswered is: What are the absolute critical information requirements (CCIR) the commander must have to exercise battle command? One conclusion is that CCIR are situationally driven, but three that apply to any situation and are essential for the commander are: the current enemy situation (disposition and activities) and capability; the friendly situation (disposition and activities), and friendly combat strength. The most important conclusion about CCIR is that the commander must establish, publish, and emphasize HIS CCIR to effectively manage information flow. Division level OPORDs, backbriefs, and rehearsals should stress the CCIR.

Other conclusions drawn from the study: We do not have a doctrinal model for heavy division command groups. A commander's discretion is the ultimate deciding factor in command group organization and operation. Combat experienced commanders have a different perception of where their location should be on the battlefield (in terms of secondary locations) than do non-combat division commanders. This is based on their perception of how to best fight the deep fight. A commander who is out of

communications with his division is not commanding. Survivability factors remain very important to command group operational effectiveness. As communications systems and procedures continue to improve, the personnel requirements within the command group should decrease.

The final conclusion drawn from this study is that the recommended command group organization described earlier differs from the version contained in FM 71-100-1, Armored and Mechanized Division Operations Tactics, Techniques, and Procedures (Final Draft,[1] due in large part to the conclusions made based on the survey responses. An example is the recommendation for the M2 BFV as the primary C2 vehicle. Not only could this vehicle provide similar communications support to that of an M113, (as detailed in the FM), but it could also provide enhanced firepower for limited offensive and defensive requirements. Additionally, interview data supported the recommended personnel and equipment found in the suggested command group structure. FM 71-100-1 came out after this study began.

Recommendations

These recommendations developed from observations identified in the research process used in this study. They also came from areas for which time did not permit further investigation. The survey population also provided considerable input into these conclusions.

Researchers considering this topic area would do well to contact individual division G3 offices to acquire a "feel" for what those organizations are currently operating in their respective divisions for command groups. Much initiative is producing many diverse systems to address a commander's battle command requirements in our Army. Not all these initiatives are being done in harmony with other initiatives. The variety of

products coming forth can mislead a researcher into mistakenly assessing a single example to be the trend rather than the exception.

Surveys are great tools to use in obtaining information. Further research in this area might produce better statistical data if the survey questions are tested against a larger test bed before being distributed to the population or sample. There are many potential benefits to be gained from executing surveys as part of a research effort. Having a clear plan for developing, testing, administering, and finally analyzing the surveys is critical.

A possible topic for other research would be to investigate future command group organizations. Specifically looking at what whould go into the command group facility in terms of equipment. Considerable effort is ongoing in "digitizing" the battlefield. Research on how those efforts will affect the division C2 structure and procedures would also proved beneficial.

These last recommendations represent current shortcomings in the way the Army addresses the issue of the command group. The division command group should participate in BCTP training. The command group's performance merits evaluation under a critical eye. Additionally, command groups should participate in all division level training exercises that incorporate the bulk of the division's command and control structure. Benefits could also result from including, as part of the formal training which general officers receive in their PCC, a discussion about command group operations and TTPs that work.

The significance of this study is in addressing a void that exists in our current doctrine involving what a command group should be, and more important, the role it plays within the division C2 system. This study offers a "model" from which commanders can adjust in developing their command group. It also incorporates into its organization and structure those functional requirements a command group must support.

ENDNOTES

Chapter 1

[1]Department of the Army, FM 100-5, Operations (Washington, D.C.: GPO, 1993), 3-1.

[2]Ibid., 1-4.

[3]Department of the Army, FM 71-100, Division Operations (Washington, D.C.: GPO, 1990), 3-4 - 3-7.

[4]Ibid., 3-3. (Command group is underlined here for emphasis).

[5]FM 100-5, Glossary-1.

[6]Department of the Army, Commander's Planning Group, Training and Doctrine Command (TRADOC), TRADOC Pamphlet 525-100-1, Leadership and Command on the Battlefield (Washington, D.C.: 1992), viii.

[7]FM 100-5, Glossary-1.

[8]Department of the Army, FM 101-5-1, Operational Terms and Symbols (Washington, D.C.: GPO, 1985), 1-16.

[9]FM 71-100, 3-1.

[10]FM 101-5-1, 1-17.

[11]FM 71-100, 3-4.

[12]Department of the Army, FM 101-5, Command and Control for Commanders and Staff (Final Draft) (Washington, D.C.: GPO, 1993), 3-1 - 3-2.

[13]Ibid., 5-11.

[14]Department of Defense, Joint Chiefs of Staff, The Official Dictionary of Military Terms (Washington, D.C.: Hemisphere Publishing Company, 1988), 78.

[15]FM 101-5, 5-1.

[16]Ibid., 5-18.

[17]Ibid.

[18]Ibid., 1-26 - 1-27.

[19]U.S. Army Command and General Staff College, Student Text 100-9, The Tactical Decision Making Process (Fort Leavenworth, KS: 1993), 2-9.

[20]FM 100-5, Glossary-2.

[21]John Sylvester, COL (Then serving as the Director of the Command and Staff Department, United States Army Armor Center, Fort Knox, Kentucky), "Tiger Brigade Operations" briefing, presented to Armor Officers Advanced Course (AOAC) students, E-1 classroom, Skidgel Hall, spring 1992.

[22]David C. McKiernan, LTC, Command and Control and Communications at the VII Corps Tactical Command Post: Operation Desert Shield/Desert Storm (Carlisle Barracks, PA: U.S. Army War College), 6.

Chapter 2

[1]Department of the Army, FM 22-100, Military Leadership (Washington, D.C.: GPO, 1990), 45.

[2]TRADOC Pamphlet 525-100-1, vii.

[3]FM 71-100, 5-4.

[4]John Keegan, The Mask of Command (Harrisonburg, VA: R.R. Donnelly & Sons Company, 1987), 81.

[5]FM 71-100, 3-2.

[6]Department of the Army, FM 22-103, Leadership and Command at Senior Levels (Washington, D.C.: GPO, 1987), 82.

[7]Roger H. Nye, The Patton Mind: The Professional Development of an Extraordinary Leader (New York: Avery Publishing Group Inc., 1993), 47.

[8]Ibid., 136.

[9]Erwin Rommel, B.H. Liddell Hart, ed., The Rommel Papers, trans. Paul Findlay (New York: Harcourt, Brace and Company, 1953), 15.

[10]Ibid., 39.

[11]Ibid., 122.

[12]Ibid., 174.

[13]Ibid., 200.

[14]Ibid., 246.

[15]Ibid., 200.

[16]Haynes W. Dugan, Spearhead (Paducah, KY: Turner Publishing Company, 1991), 68 - 71.

[17] United States Army, VII Corps, Mission Accomplished: The Story of the Campaigns of the VII Corps, United States Army, In War Against Germany, 1944-1945, (Leipzig, Germany: J.J. Wever, 1945), 63.

[18]Bruce R. Pirnie, Division and Corps Command Posts in World War II (Washington, D.C.: U.S. Army Center of Military History, 1986), 10.

[19]Ibid., 10 - 11.

[20]Ibid.

[21]Ibid., 4.

[22]Ibid., 10.

[23]Keegan, 329.

[24]FM 71-100, 3-4.

[25]FM 22-100, 5.

[26]FM 71-100, 3-4.

[27]Department of the Army, FM 71-100-2, Infantry Division Operations: Tactics, Techniques, and Procedures (Washington, D.C.: GPO, 1993), 2-37.

[28]Ibid.

[29]Ibid., 2-3 - 2-4.

[30]TRADOC Pamphlet 525-100-1, 47.

[31]Department of the Army, FM 71-100-1, Armored and Mechanized Division Operations: Tactics, Techniques and Procedures (Final Draft) (Washington, D.C.: GPO, 1993), 2-10.

[32]Ibid., 2-124.

[33]Interview with LTG Ronald Griffith, The Army Inspector General, 12 January 1994, Bell Hall, Fort Leavenworth, Kansas. LTG Griffith commanded the 1st Armored Division during Desert Shield/Desert Storm. Written recording.

[34]FM 71-100-1, 2-126.

[35]Interview with LTG Griffith.

[36]U.S. Army Command and General Staff College, Field Circular (FC) 101-55, Corps and Division Command and Control (Washington, D.C.: GPO, 1985), 3-10.

[37]FM 101-5, 5-1.

[38]Department of the Army, FM 11-50, Combat Communications within the Division (Heavy and Light) (Washington, D.C.: GPO, 1991), 1-6.

[39]Interview with MG Jared Bates, Commander, 2d Armored Division, 18 November 1993, Bell Hall, Fort Leavenworth, Kansas. Written recording.

[40]Ibid.

[41]James P. Kahan, D. Robert Worley, and Cathleen Stasz, RAND Publication Series, Understanding Commander's Information Needs (Santa Monica, CA: RAND Corporation, 1989), 5.

[42]Ibid., viii.

[43]Department of the Army, Combined Arms Combat Development Activity, Division Commander's Critical Information Requirements (CCIR) (Fort Leavenworth, KS: Local Reproduction, 30 April 1985), viii.

[44]Student Text 100-9, 2-9.

[45]Robert R. Leonard, The Art of Maneuver (Novato, CA: Presidio Press, 1991), 120.

[46]Jack Burkett, LTC, "Tactical Information: What You See is What You Get," Military Review Vol 71 no 11 (November 1991): 39.

[47]Ibid., 41.

[48]Ibid., 40.

[49]Crosbie E. Saint, GEN, "Commanders Must Still Go See," Army Magazine Vol 46 no 6 (June 1991), 26.

[50]Ibid., 20.

[51]Center for Army Lessons Learned (CALL), U.S. Army Combined Arms Training Activity, "Newsletter: Winning in the Desert II," No 90-8 (September 1990), 19.

[52]Frederick J. Kroesen, "What Should a Command Post Do?" Army Magazine Vol 43 no 1 (January 1993), 33.

[53]Randolph H. House, COL, "C2 in a Heavy Brigade -- Movement to Contact," Military Review Vol 71 no 11 (November 1991), 12.

[54]Ibid., 12.

[55]Center for Army Lessons Learned (CALL), U.S. Army Combined Arms Training Activity, "Newsletter: Joint Tactical Communications," No 92-1 (January 1992).

[56]Ibid.

[57]McKiernan, 11.

[58]Ibid., 14.

[59]Ibid., 20

[60]Ibid., 12.

[61]Ibid., 13 - 14.

[62]Ibid., 52.

[63]Ibid., 45.

[64]JULLS Long Report, U.S. Army Gulf War Studies Specific Collection, Group VII Corps, AAR-040, Part 2 (Lessons Learned), Vol 2D, Lessons Learned Combat Phase, Book 2, Tab G, Command and Control (C2), SECRET, June 1991. (The document is classified SECRET, not the title).

[65]CALL, "Newsletter: Winning in the Desert II," 25.

[66]Bruce C. Clarke, GEN, and BG John H. Hill, ARC - Art and the Requirements of Command, Vol II: Generalship Study, U.S. Army War College, (Washington, D.C.: GPO, 1983).

[67]Ibid., 3.

[68]Ibid.

Chapter 3

[1]Tyrus Hillway, Introduction to Research (Boston: Houghton Mifflin Company, 1964), 100.

[2]Ibid., 101 - 103.

[3]E.J.Kahn, Jr., CWO, Fighting Divisions: Histories of Each U.S. Army Combat Division in World War II, (Washington, D.C.: Zenger Publishing Company, 1945), xi.

[4]George Forty, Patton's Third Army at War, (London: Arms and Armour Press, 1976), 4.

[5]FM 71-100, 1-22.

[6]Clarke, 1.

[7]Ibid.

[8]Ibid., 74.

Chapter 4

[1]Pirnie, 11.

[2]Ibid., 10.

[3]Clarke, 84.

[4]Keegan, 157.

[5]Ulyses S. Grant, E.B. Long, ed., The Personal Memoirs of U.S. Grant, (New York: Da Capo Press, 1982), 183.

[6]FM 71-100, 3-4.

[7]Ibid.

[8]Ibid.

[9]Ibid., 3-2 - 3-4.

[10]Ibid., 3-4.

[11]Ibid., 1-22.

[12]Ibid., 3-4.

[13]FM 101-5, 5-11.

[14]FM 71-100, 3-4.

[15]Ibid., 3-3

[16]CALL, "Newsletter: Joint Tactical Communications," 6.

[17]JULLS Long Report, 564, 566, 567.

[18]Department of the Army, Combined Arms Combat Development Activity, Division Commander's Information Requirements (CCIR), (Fort Leavenworth, KS: Local Reproduction, 30 April 1985).

[19]Alan D. Campen, Contributing Editor, The First Information War: The Story of Communications, Computers and Intelligence Systems in the Persian Gulf War (Fairfax, VA: AFCEA International Press, 1992), vii.

[20]Saint, 26.

[21]Patrecia Slayden Hollis, Managing Editor, Interview with LTG Barry R. McCaffrey, "Artillery - The Most Important Factor on the Battlefield," Field Artillery Journal, HQDA PB6-94-1, (Fort Sill, OK: Local Reproduction), 5.

[22]McKiernan, 13 - 14.

[23]House, 12.

[24]Assessment of McKiernan's work.

[25]Interview with MG Bates.

[26]Interview with LTG Griffith.

[27]Telephonic interview with LTC Keith Alexander, War College student, former G2, 1st Armored Division during Desert Shield/Desert Storm. 12 February 1994, written recording.

[28]Interview with CPT Pat Frakes, CAS3 student, former Signal/ Communications Officer for the 24th Infantry Division (M) Assault CP during Desert Shield/Desert Storm. 10 February 1994, Bell Hall, Fort Leavenworth, Kansas. Written recording.

[29]Interview with LTG John H. Tilelli, Jr., Deputy Chief of Staff for Operations and Plans, U.S. Army. Former commander 1st Cavalry Division during Desert Shield/ Desert Storm. 24 Febraury 1994, Bell Hall, Fort Leavenworth. Written recording.

Chapter 5

[1] Department of the Army, FM 71-100-1, Armored and Mechanized Division Operations: Tactics, Techniques, and Procedures (Final Draft), (Washington, D.C.: GPO, 1993), 2-124.

APPENDIX A:

COMMANDER'S CRITICAL INFORMATION REQUIREMENTS (CCIR)

1. This list is from the study conducted by the Combined Arms Combat Development Activity (CACDA).

Adjacent Unit Situation

Area of Operations

Assessment (EW + OPSEC)

Assets Available

Ave of Approach (Time/Dist Factor)

Axis of Advance Information

Battlefield Geometry

Command Controlled Items

Concept of Operation

Critical Situation Alert

Enemy Aircraft

Enemy Mission

Enemy Situation

Enemy Weapons Systems

Friendly Activities

Intelligence Summary

Key Terrain

Radiation Dose Status

Release Policy (NUC)

Target Criteria

Task Organization

Friendly Units

Command Guidance

APPENDIX B:

CCIR QUESTIONS

1. Can the unit still meet the commander's intent?
2. Where is the enemy? Doing what? How?
3. Where are friendly forces? Doing what? How?
4. What is the posture of the force in the next 6 hours, 12 hours, and so on?
5. Where will friendly forces be in the next 6 hours, 12 hours, and so on?
6. What are the enemy's problems and how can friendly forces exploit them?
7. What are the friendly forces' problems and how can they be corrected?
8. What are the enemy's opportunities, and how can friendly forces deny them?
9. What are the friendly force's opportunities and how can they be exploited?
10. Are any changes needed to the concept? Task organization? Mission?

APPENDIX C:

SURVEY COVER LETTER

January 13, 1994

Graduate Degree Program

Lieutenant General Wilson A. Shoffner
OCSA Holding Detachment
US Army
Washington DC 20310-0200

Dear General Shoffner:

If we had to go to war tomorrow, how would your command group be structured, what functional requirements would it support, and how would you man and equip it?

That is the question I seek to answer for my Master of Military Art and Science thesis while attending the Command and General Staff College this year.

The purpose behind this research is not to standardize the command group for heavy divisions, but to develop a generic "model" from which commanders can adjust their own command group. The importance of this research is in addressing a void that our current 71-100 manual, Division Operations, creates by not providing greater detail on those command group considerations. Your input, and those of your fellow division commanders, will help establish a design for future division commanders to use.

To provide your input, please fill out the attached survey and return it in the enclosed envelope. If you prefer, I can take your input telephonically. If a staff officer will be filling out the survey based on your guidance, please indicate so on the comment sheet. The survey findings will be presented only in summary format.

POC during normal duty hours is Dr. Ernest Lowden, DSN 552-3320/4277. I can be reached after 1700 hours at my quarters, (XXX) XXX-XXXX. Thank you for your assistance.

Sincerely,

Philip R. Tilly
Major, United States Army
Student Detachment

APPENDIX D:

SURVEY

COMMANDER'S SURVEY 13 JANUARY, 1994

ANSWER THESE QUESTIONS BASED UPON YOUR EXPERIENCE AS A HEAVY DIVISION COMMANDER. FOR ALL YES/NO QUESTIONS WITHIN THE SURVEY, CIRCLE THE "Y" FOR YES AND THE "N" FOR NO.

1. Did you deploy/operate from your command group while in command?

Y N

2. Have you deployed/operated from your command group during combat operations?

Y N

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. FOR QUESTIONS #3-8, AND 11-12, PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO FORTH.

3. At which location do you plan to (or actually did) spend most of your time during combat operations?

_____ DIVISION MAIN CP

_____ DIVISION TAC CP

_____ DIVISION REAR CP

_____ COMMAND GROUP (Ground mode)

_____ COMMAND GROUP (Aircraft)

_____ OTHER (Please specify) _____

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO FORTH.

4. Recognizing that they are all important to your command group, please rank in order the following operational factors as you assess their significance.

_____ SPEED (Ability to stay up with lead forces)

_____ SIMPLICITY (Not a lot of moving parts)

_____ ACCESS (Ability to physically view the battlefield)

_____ ACCESS (Ability to physically meet with and talk to your subordinate commanders, face-to-face, in relative security. Different meaning than above.)

_____ CONTINUOUS OPERATIONS (Sustain continuous operations without degradation of effectiveness)

_____ QUALIFIED PERSONNEL (First string manning)

_____ COMMUNICATIONS (Uninterrupted, secure, and on-the-move ability to communicate to higher, subordinates, adjacent units, and division CPs)

_____ INFORMATION (Able to provide you your critical information requirements)

_____ AUTOMATION (Latest systems available)

_____ OTHER (Please specify) _____

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO FORTH.

5. Please rank in order the following survivability factors as you assess their importance.

_____ MOBILITY (Ability to move quickly and over rough terrain)

_____ AUSTERITY (Less is better than more)

_____ ARMOR PROTECTION (Protection against small arms fire and limited indirect fires)

_____ DISPERSION (Ability to spread out and still maintain operational security and effectiveness, while stationary or moving)

_____ REDUNDANCY (Exact same systems for backup in case primary goes down: radios, vehicles, weapons, etc.)

_____ SIGNATURE (Physical signature from vehicle exhaust and engine noise, electronic signature, similarity with vehicles you are moving with)

_____ LOCAL SECURITY (Ability to secure your immediate area)

_____ LIMITED OFFENSIVE/DEFENSIVE CAPABILITY (Ability to suppress limited enemy small arms fire)

_____ MAINTENANCE/SUSTAINMENT (Equipment reliability, limited personnel sustainment capability)

_____ OTHER (Please specify) _____

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO FORTH.

6. What do you anticipate will be your critical information requirements during combat in order to exercise command and control? (Please rank in order of importance.)

_____ ADJACENT UNIT SITUATION

_____ FRIENDLY COMBAT SYSTEMS STATUS (Strength in personnel and equipment)

_____ ENEMY ACTIVITIES/SITUATION

_____ FRIENDLY ACTIVITIES/MAIN BODY AND SECURITY FORCES

_____ FRIENDLY ACTIVITIES/REAR AREA

_____ FRIENDLY ACTIVITIES/DEEP BATTLE

_____ INTELLIGENCE SUMMARY

_____ TASK ORGANIZATION

_____ OTHER (Please specify) _____

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO FORTH.

7. Please rank in order which of the following communication systems you would ideally like to have in your command group.

_____ MSE (Mobile Subscriber Equipment)

_____ MSE FACSIMILE (FAX)

_____ SINGLE CHANNEL TACSAT (Satellite communications)

_____ FM (Frequency Modulation) RADIO (SINCGARS)

_____ MULTICHANNEL TACSAT (satellite communications)

_____ AM-HF (Amplitude Modulation) Radio

_____ COMMERCIAL CELLULAR TELEPHONE

_____ OTHER (Please specify) _____

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO FORTH.

8. Please rank in order the type of navigation system you would want to rely upon for your command group.

_____ GPS (SLUGR)

_____ LORAN

_____ MAGELLAN

_____ LENSATIC COMPASS

_____ TERRAIN ASSOCIATION

_____ EPLRS

_____ IVIS (or IVIS-like)

_____ OTHER (Please specify) _____

9. Would you want the following type of force(s)/equipment for local security for your command group during combat operations?

Y N DISMOUNTED INFANTRY SQUAD

Y N DISMOUNTED INFANTRY PLATOON

Y N SOME TYPE OF DISMOUNTED SECURITY
(From organic personnel: drivers, MPs)

Y N M1 (1 to 2)

Y N M2 (1 to 2)

Y N MPs (1 to 2 vehicles, hard-top HMMWV w/ MARK-19 or M-60)

Y N OTHER (Please specify) _____

RECOGNIZING THAT MISSION, ENEMY, TERRAIN, TROOPS, AND TIME (METT-T) ULTIMATELY SHAPE YOUR COMMAND GROUP, PLEASE ANSWER THE FOLLOWING QUESTIONS AS THEY WOULD APPLY TO A CONVENTIONAL, HIGH INTENSITY CONFLICT SCENARIO. WHERE IT APPLIES PLEASE RANK YOUR RESPONSES IN ORDER, WITH A "1" FOR THE MOST PREFERRED, A "2" FOR THE SECOND MOST PREFERRED, AND SO ON.

10. Do you anticipate conducting continuous operations within your command group (in excess of 96 hours)?

Y N

IF YOU ANSWERED YES TO QUESTION #10, THEN PLEASE ANSWER QUESTION #11. IF YOU ANSWERED NO, THEN GO TO QUESTION #12.

11. Please rank in order the following methods you would prefer for providing personnel support during continuous operations within the command group.

_____ MAINTAIN ENOUGH PERSONNEL WITHIN THE COMMAND GROUP TO ROTATE INTERNALLY

_____ ROTATE PERSONNEL FROM THE DIVISION TAC CP

_____ ACKNOWLEDGE NO EASY SOLUTION (Little sleep, rotation where and when possible in order to keep a small size)

12. Please rank in order the type of vehicle out of which you would personally want to operate for you command group.

_____ M113 SERIES

_____ M2/M3 SERIES

_____ M1 SERIES

_____ M998 (HMMWV) SERIES

_____ UH-1 AIRCRAFT

_____ UH-60 AIRCRAFT

_____ M577

_____ OTHER (Please specify)

13. From a Commander's point of view does this survey address all the important elements of a command group? If not, then please provide any additional comments in the space below. Thank you for your help.

APPENDIX E:

GENERAL OFFICER SURVEY POPULATION

1. GEN Barry R. McCaffrey

2. LTG Paul E. Funk
3. LTG Ronald H. Griffith
4. LTG William W. Hartzog
5. LTG Neal T. Jaco
6. LTG Richard F. Keller
7. LTG Glynn C. Mallory
8. LTG Thomas G. Rhame
9. LTG James T. Scott
10. LTG Wilson A. Schoffner
11. LTG John H. Tilelli, Jr.

12. MG Jared L. Bates
13. MG Paul E. Blackwell
14. MG William M. Boice
15. MG William G. Carter
16. MG Wesley K. Clark
17. MG Guy A. LaBoa
18. MG Caryl G. Marsh
19. MG Josue Robles, Jr.
20. MG John N. Abrams
21. MG Leonard D. Holder, Jr.
22. MG Thomas A. Schwartz

APPENDIX F:

SURVEY RESPONSE DATA TABLES

1. The following tables represent the data gathered from the study's survey. Of twenty-two general officers initially contacted to participate in the survey, fifteen returned their completed surveys.

2. The tables are organized in the same numerical order that the survey questions appear. At the top of each table is the abbreviated survey question. The tables are structured in the following manner:

a. The tables are organized with letters at the top of each column, and numbers along the rows to the left. Below the letters in every other column are numbers, in row #2, which correspond to one particular respondent. (A similar row runs along the bottom of each table which mirrors the top numbered row). The column below the number contains the respondent's answers to the question at the top of the table.

b. Immediately to the right of the numbered columns is the RO column, which contains the Rank Order Value assigned to each respondent's answer. The RO columns are designated at the top of each column, along row #3.

c. Column "A" contains the possible answers contained in the survey for the question listed at the top of the table.

d. The Rank Order Value assigned to each respondent's answer is first determined by the total possible answers for that question. The higher a respondent's answer among the possible choices, the larger the number assigned in the Rank Order Value column. [For example, if there are eight possible answers, and the respondent chooses an answer as his "1" choice, then a value of "8" is attached in the RO column. Likewise, if he assigns an "8" for his an answer, then a value of "1" is put in the RO column.]

e. At the far right end of the table is the summary section, beginning with column AT. Below AT is the total column, or TOT, as it appears on the table. This column contains the sum total of all the respondents RO values. Under the AV column are the CV totals. These represent the sum total of the four combat division commanders RO values.

f. The AX column contains CN totals. These are the RO value sum total of the three commanders with divsion or regimental combat experience. The AZ column contains the RO sum total of the eight remaining division commanders.

g. Within this section of the table are highlighted RO columns, under the AU, AW, AY, and BA headings. These figures represent the rank ordered answers generated by the respondent's answers for each possible answer. [For example, a number "2" in the AU column would represent the second most (overall) preferred answer among the total survey population. A number "3" in the AW column would represent the third most (overall) preferred answer among the combat division commanders.]

h. The exceptions to the above described conditions are tables 1, 2, 9, and 10. Tables 1, 2, and 10 are self-explanatory upon review. Table 9 warrants some explanation. Table 9 seeks to determine the local security requirements, as assessed by the survey population. Through a Yes-No process, the respondents indicate what local security they prefer. The figures under the X, Z, AB, and AD columns represent the total "YES" responses each possible answer generated. The placement values in the RO columns correspond, in order, from the largest "YES" quantities to the smallest.

QUESTION 1: Did you deploy/operate from your command group during command?

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1		Respondents 1 thru 22																						
2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
3	Answers:																							TOT
4																								YES
5	Yes	Y		Y		Y	Y	Y	Y			Y		Y	Y	Y	Y	Y	Y	Y		Y		15
6																								
7	No																							

QUESTION 2: Have you deployed/operated from your command group during combat operations?

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Answers:																							TOT
2																								YES
3	Yes	Y		Y					Y			Y												4
4																								NO
5	No					N	N	N						N*	N	N*	N	N	N	N		N**		11
6																								
7		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
8		Respondents 1 thru 22																						

* Designates ADC (M) during combat, ** designates Regimental Commander during combat. TOT = total

QUESTION 3: At which location do you plan to (or actually did) spend most of your time during combat operations?

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1		Respondents 1 thru 22																								
2		1		2		3		4		5		6		7		8		9		10		11		12		13
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	
4	Answers:																									
5																										
6	Div MAIN CP					3.5	3.5			4	3	1	6	2	5	4	3					2	5			4
7																										
8	Div TAC CP					3.5	3.5			3	4	2	5	5	2	3	4					1	6			3
9																										
10	Div REAR CP									5	2	5	2	6	1	5	2					5	2			
11																										
12	CMD GRP G	1	6			2	5			1	6	3	4	4	3	1	6					3	4			1
13																										
14	CMD GRP A	2	5			1	6			2	5	4	3	3	4	2	5					4	3			2
15																										
16	Other													1	6											
17																										
18		1		2		3		4		5		6		7		8		9		10		11		12		13
19		Respondents 1 thru 22																								

QUESTION 3: At which location do you plan to (or actually did) spend most of your time during combat operations?

A	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																											
2		14		15		16		17		18		19		20		21		22									
3	RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																											
5																											
6	3	1	6	1.5	5.5			2	5	2	5	3	4			4	3			57	2	11.5	4	11.5	3	34	1
7																											
8	4			3	4			1	6	3	4	1	6			3	4			52.5	3	13.5	3	12	2	27	2.5
9																											
10										5	2	5	2							13	5	4	5	0	5	9	5
11																											
12	6			1.5	5.5	1	6			4	3	2	5			1	6			65.5	1	21	1	17.5	1	27	2.5
13																											
14	5									1	6	4	3			2	5			50	4	19	2	10	4	21	4
15																											
16																				6	6	0		0		6	
17																											
18		14		15		16		17		18		19		20		21		22									
19																											

QUESTION 4: Please rank in order the following operational factors as you assess their significance.

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1		Respondents 1 thru 22																									
2		1		2		3		4		5		6		7		8		9		10		11		12		13	
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO
4	Answers:																										
5																											
6	Speed	3	8			4	7			5	6	6	5	7	4	3	8					5	6			9	2
7																											
8	Simplicity					6	5			9	2	5	6	5	6	5	6					7	4			8	3
9																											
10	Access (1)	5.5	5.5							8	3	8	3	8	3	6	5					8	3			5	6
11																											
12	Access (2)	5.5	5.5			7	4			4	7	4	7	6	5	4	7					1	10			7	4
13																											
14	Cont Opns					2	9			3	8	2	9	4	7	7	4					6	5			6	5
15																											
16	Qual Pers	2	9			5	6			7	4	7	4	3	8	8	3					2	9			4	7
17																											
18	Commo	1	10			3	8			1	10	1	10	1	10	1	10					3	8			1	10
19																											
20	Information					1	10			2	9	3	8	2	9	2	9					4	7			2	9
21																											
22	Automation					8	3			6	5	9	2	9	2	9	2					9	2			3	8
23																											
24	Other	4	7																								
25																											
26		1		2		3		4		5		6		7		8		9		10		11		12		13	
27		Respondents 1 thru 22																									

QUESTION 4: Please rank in order the following operational factors as you assess their significance.

A	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																										
2	14		15		16		17		18		19		20		21		22									
3		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																										
5																										
6	7	4	6	5	7	4	8	3	7	4	8	3			7	4			73	6	29	2	11	8.5	33	8
7																										
8	5	6	5	6	8	3	7	4	9	2	6	5			5	6			64	8	15	7	15	5.5	34	7
9																										
10	9	2	8	3	6	5	9	2	6	5	9	2			6	5			52.5	9	13.5	8	14	7	25	9
11																										
12	8	3	4	7	4	7	5	6	2	9	1	10			4	7			98.5	3	26.5	4	18	4	54	4
13																										
14	3	8	7	4	9	2	6	5	3	8	2	9			9	2			85	5	18	6	11	8.5	56	3
15																										
16	6	5			5	6	1	10	5	6	5	6			3	8			91	4	27	3	15	5.5	49	5
17																										
18	2	9	1	10	1	10	3	8	1	10	3	8			2	9			140	1	36	1	29	1	75	1
19																										
20	1	10	2.5	8.5	2	9	2	9	4	7	4	7			1	10			122	2	26	5	28	2	68	2
21																										
22	4	7	2.5	8.5	3	8	4	7	8	3	7	4			8	3			64.5	7	7	10	20	3	38	6
23																										
24																			7	10	7	10	0	10	0	10
25																										
26	14		15		16		17		18		19		20		21		22									
27																										

QUESTION 5: Please rank in order the following survivability factors as you assess their importance.

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1		Respondents 1 thru 22																									
2		1		2		3		4		5		6		7		8		9		10		11		12		13	
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO
4	Answers:																										
5																											
6	Mobility	1	10			1	10			1	10	1	10	1	10	1	10					1	10			4	7
7																											
8	Austerity					2	9			9	2	9	2	2	9	4	7					3	8			8	3
9																											
10	Armor Prot	2	9			8	3			5	6	3	8	6	5	2	9					8	3			3	8
11																											
12	Dispersion					4	7			6	5	2	9	5	6	5	6					6	5			7	4
13																											
14	Redundancy					3	8			3	8	5	6	7	4	6	5					2	9			5	6
15																											
16	Signature					5	6			2	9	6	5	3	8	3	8					4	7			6	5
17																											
18	Local Sec					6	5			7	4	7	4	8	3	7	4					5	6			1	10
19																											
20	Lim Off/Def	3	8			7	4			8	3	8	3	9	2	8	3					9	2			9	2
21																											
22	Maint/Sust									4	7	4	7	4	7	9	2					7	4			2	9
23																											
24	Other																									10	1
25																											
26		1		2		3		4		5		6		7		8		9		10		11		12		13	
27		Respondents 1 thru 22																									

QUESTION 5: Please rank in order the following survivability factors as you assess their importance.

A	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																										
2	14		15		16		17		18		19		20		21		22									
3		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																										
5																										
6	2	9	4	7	1	10	4	7	1	10	1	10			1	10			140	1	40	1	24	2	76	1
7																										
8	7	4	7	4	5	6	6	5	3	8	3	8			6	5			80	5	24	3	12	8	44	6.5
9																										
10	6	5	1	10	2	9	3	8	2	9	8	3			4	7			102	2	24	3	25	1	53	3
11																										
12	1	10	9	2	8	3	5	6	5	6	4	7			9	2			78	6	18	6	8	9	52	4.5
13																										
14	3	8	2	9	4	7	2	9	6	5	6	5			7	4			93	4	22	4	19	5	52	4.5
15																										
16	5	6	3	8	3	8	1	10	4	7	2	9			8	3			99	3	21	5	16	6.5	62	2
17																										
18	8	3	8	3	6	5	9	2	8	3	5	6			3	8			66	8	15	8	21	3.5	30	8
19																										
20	9	2	6	5	9	2	8	3	9	2	9	2			2	9			52	9	17	7	16	6.5	19	9
21																										
22	4	7	5	6	7	4	7	4	7	4	7	4			5	6			71	7	6	9	21	3.5	44	6.5
23																										
24																			1	10	0	10	1	10	0	10
25																										
26	14		15		16		17		18		19		20		21		22									
27																										

QUESTION 6: What do you anticipate will be your CCIR during combat in order to exercise command and control?

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1		Respondents 1 thru 22																							
2		1		2		3		4		5		6		7		8		9		10		11		12	
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO
4	Answers:																								
5																									
6	Adjacent Unit Stat	4	6			3	7			6	4	6	4	7	3	3	7					8	2		
7																									
8	FR CBT SYS Stat					5	5			5	5	3	7	5	5	6	4					3	7		
9																									
10	EN Act/Sit	3	7			1	9			1	9	1	9	1	9	2	8					1	9		
11																									
12	FR Act/M Bod/Sec	1	9			2	8			2	8	2	8	2	8	1	9					2	8		
13																									
14	FR Act/Rear Area					8	2			8	2	8	2	8	2	7	3					7	3		
15																									
16	FR Act/Deep	2	8			6	4			3	7	4	6	3	7	8	2					6	4		
17																									
18	INTEL Summary					4	6			7	3	5	5	4	6	4	6					4	6		
19																									
20	Task Organization					7	3			4	6	7	3	6	4	5	5					5	5		
21																									
22	Other																								
23																									
24		1		2		3		4		5		6		7		8		9		10		11		12	
25		Respondents 1 thru 22																							

QUESTION 6: What do you anticipate will be your CCIR during combat in order to exercise command and control?

A	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																												
2	13		14		15		16		17		18		19		20		21		22									
3		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																												
5																												
6	8	2	6	4	7	3	8	2	5	5	8	2	8	2			6	4			57	6	22	3	9	7	26	7
7																												
8	4	6	1	9	4	6	3	7	2	8	3	7	2	8			3	7			91	3	16	6	19	4	56	3
9																												
10	2	8	2	8	3	7	1	9	1	9	2	8	1	9			1	9			127	1	33	2	24	1.5	70	1
11																												
12	3	7	4	6	1	9	2	8	3	7	1	9	3	7			2	8			119	2	34	1	24	1.5	61	2
13																												
14	7	3	8	2	6	4	7	3	6	4	7	3	7	3			7	3			39	8	8	8	10	6	21	8
15																												
16	5	5	3	7	2	8	5	5	4	6	4	6	6	4			5	5			84	4	18	4.5	18	5	48	4
17																												
18	1	9	5	5	5	5	6	4	7	3	5	5	4	6			4	6			75	5	18	4.5	20	3	37	5
19																												
20	6	4	7	3	8	2	4	6	8	2	6	4	5	5			8	2			54	7	13	7	8	8	33	6
21																												
22	9	1																			1	9	0	9	1	9	0	9
23																												
24	13		14		15		16		17		18		19		20		21		22									
25																												

QUESTION 7: Please rank in order which of the following communication systems you would ideally like to have in your cmd grp.

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1		Respondents 1 thru 22																							
2		1		2		3		4		5		6		7		8		9		10		11		12	
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO
4	Answers:																								
5																									
6	MSE					3	7			1	9	2	8	2	8	5	5					2	8		
7																									
8	MSE Facsimile	3	7			8	2			4	6	3	7	5	5	6	4					4	6		
9																									
10	MCS					7	3			5	5	5	5	8	2	8	2					8	2		
11																									
12	SingChan TACSAT	1	9			4	6			6	4	6	4	3	7	2	8					1	9		
13																									
14	FM					1	9			2	8	1	9	1	9	1	9					6	4		
15																									
16	MultiChan TACSAT	2	8			2	8			3	7	4	6	4	6	3	7					3	7		
17																									
18	AM-HF					5	5			7	3	7	3	7	3	4	6					5	5		
19																									
20	Com Cellular Tele					6	4			8	2	8	2	6	4	7	3					1	9		
21																									
22	Other	4	6																						
23																									
24		1		2		3		4		5		6		7		8		9		10		11		12	
25		Respondents 1 thru 22																							

QUESTION 7: Please rank in order which of the following communication systems you would ideally like to have in your cmd grp.

A	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																												
2	13		14		15		16		17		18		19		20		21		22									
3		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																												
5																												
6	1	9	2	8	1	9	2	8	2	8	5	5	5	5			4	6			103	2	20	4	24	1	59	2
7																												
8	8	2	5	5	5	5	6	4	5	5	6	4	3	7			6	4			73	5	19	5	11	7	43	5
9																												
10	7	3	6	4	6	4	8	2	8	2	7	3					7	3			40	8	7	8	10	8	23	8
11																												
12	4	6	3	7	3	7	4	6	7	3	2	8	1	9			3	7			100	3	32	1	20	3	48	4
13																												
14	2	8	7	3	4	6	1	9	1	9	3	7	2	8			1	9			107	1	22	3	23	2	52	1
15																												
16	3	7	1	9	2	8	3	7	3	7	1	9					8	2			98	4	30	2	17	4	51	3
17																												
18	6	4	4	6	7	3	7	3	4	6	4	6					2	8			61	6	16	6.5	15	5	30	6
19																												
20	5	5	8	2	8	2	5	5	6	4	8	2	4	6			5	5			55	7	16	6.5	12	6	27	7
21																												
22	9	1																			7	9	6	9	1	9	0	9
23																												
24	13		14		15		16		17		18		19		20		21		22									
25																												

QUESTION 8: Please rank in order the type of navigation system you would want to rely upon for your cmd grp.

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1		Respondents 1 thru 22																								
2		1		2		3		4		5		6		7		8		9		10		11		12		13
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	
4	Answers:																									
5																										
6	GPS	1	8			1	8			1	8	2	7	5	4	2	7					1	8			2
7																										
8	LORAN					2	7			3	6	3	6	4	5	3	6					5	4			3
9																										
10	MAGELLAN					5	4			4	5	1	8	3	6	1	8					2	7			4
11																										
12	Lensatic Comp	2.5	6.5			7	2			7	2	6	3	6	3	6	3					6	3			5
13																										
14	Terrain Ass	2.5	6.5			4	5			8	1	7	2	7	2	7	2					7	2			6
15																										
16	EPLRS					6	3			2	7	5	4	2	7	4	5					3	6			1
17																										
18	IVIS					3	6			5	4	4	5	1	8	5	4					4	5			7
19																										
20	Other																									
21																										
22		1		2		3		4		5		6		7		8		9		10		11		12		13
23		Respondents 1 thru 22																								

QUESTION 8: Please rank in order the type of navigation system you would want to rely upon for your cmd grp.

A	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																											
2		14		15		16		17		18		19		20		21		22									
3	RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																											
5																											
6	7	1	8	2	7	1	8	1	8	1	8	1	8			1	8			112	1	31	1	22	1	59	1
7																											
8	6	2	7	7	2	7	2	5	4	5	4	5	4			5	4			67	5	17	3	12	5	38	4
9																											
10	5			1	8	6	3			4	5	4	5			4	5			69	4	19	2	18	3	32	5
11																											
12	4			5.5	3.5	4	5	6	3	6	3					6	3			44	7	14.5	6	10.5	6	19	7
13																											
14	3	3	6	5.5	3.5	5	4	4	5	7	2					7	2			46	6	15.5	4	8.5	7	22	6
15																											
16	8	4	5	3	6	3	6	2	7	3	6	2	7			3	6			83	2	14	7	20	2	49	2
17																											
18	2	5	4	4	5	2	7	3	6	2	7	3	6			2	7			76	3	15	5	14	4	47	3
19																											
20																				0	8	0	8	0	8	0	8
21																											
22		14		15		16		17		18		19		20		21		22									
23																											

QUESTION 9: Would you want the following type of force(s)/equip for cmd grp local security during combat operations?

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1		Respondents 1 thru 22																					
2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3																							
4	Answers:																						
5																							
6	Dismounted INF Squad	*		N		N	N		Y			Y		N	Y	Y	N	N	N	N		Y	
7																							
8	Dismounted INF Platoon	*		N		N	N		N			N		N	N	N	N	N	N	N		N	
9																							
10	Dismounted Security	*		Y		Y	Y	Y	N			Y		Y	Y	Y	Y		Y	Y		Y	
11	(Drivers, MPs)																						
12	M1 (1 to 2)	*		Y		Y	N	N	Y			Y		N	N	Y	N		N	Y		N	
13																							
14	M2 (1 to 2)	*				Y	Y	Y	Y			Y		Y	Y	Y	Y	Y	Y	Y		Y	
15																							
16	MPs (1 to 2 veh)	*		N		Y	Y	Y	N			Y		Y	Y	Y	Y	Y	Y	Y		Y	
17																							
18	Other													N			N						
19																							
20		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
21		Respondents 1 thru 22																					

QUESTION 9: Would you want the following type of force(s)/equip for cmd grp local security during combat operations?

A	X	Y	Z	AA	AB	AC	AD	AE
1								
2	TOT		CV		CN		NC	
3	YES		YES		YES		YES	
4		RO		RO		RO		RO
5								
6	5	5	2	4	2	4	1	5
7								
8	0	6	0	6	0	5.5	0	6
9								
10	12	2.5	2	2.5	3	2	7	3
11								
12	6	4	3	1	1	5.5	2	4
13								
14	13	1	2	2.5	3	2	8	1.5
15								
16	12	2.5	1	5	3	2	8	1.5
17								
18								
19								
20								
21								

QUESTION 10: Do you anticipate conducting continuous operations within your command group?

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1		Respondents 1 thru 22																									
2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	TOT	CV	CN	NC
3																								YES	YES	YES	YES
4	Answers:	Y		Y		Y	Y	Y	Y			Y		Y	Y	Y	N	Y	N	N		N		11	4	2	5
5																								NO	NO	NO	NO
6																								4	0	1	3

QUESTION 11: If "YES" to 10, then rank in order the method you would prefer for providing pers spt during continuous opns.

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1		Respondents 1 thru 22																								
2		1		2		3		4		5		6		7		8		9		10		11		12		13
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	
4	Answers:																									
5																										
6	Maint Enough Pers					2	2			2	2	1	3			2	2					3	1			2
7																										
8	Rot w/ TAC Pers					3	1			1	3	3	1			3	1					1	3			1
9																										
10	Acknowledge NO	1	3			1	3			3	1	2	2	1	3	1	3					2	2			
11	easy solution																									
12																										
13		1		2		3		4		5		6		7		8		9		10		11		12		13
14		Respondents 1 thru 22																								

QUESTION 11: If "YES" to 10, then rank in order the method you would prefer for providing pers spt during continuous opns.

A	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																											
2		14		15		16		17		18		19		20		21		22									
3	RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																											
5																											
6	2			1	3	3	1	2	2			3	1							19	3	5	2.5	5	1	9	3
7																											
8	3			3	1	1	3	1	3			2	2							21	2	5	2.5	4	2	12	1.5
9																											
10				2	2	2	2	3	1			1	3							25	1	11	1	2	3	12	1.5
11																											
12																											
13		14		15		16		17		18		19		20		21		22									
14																											

QUESTION 12: Rank in order the type of vehicle out of which you would want to operate for your command group.

A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1		Respondents 1 thru 22																								
2		1		2		3		4		5		6		7		8		9		10		11		12		13
3			RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	
4	Answers:																									
5																										
6	M113 Series					6	3					2	7	3	6	3	6					5	4			1.5
7																										
8	M2/M3 Series	1	8			7	2			1	8	1	8	4	5	2	7					2	7			1.5
9																										
10	M1 Series					4	5			2	7	7	2	7	2	1	8					7	2			4
11																										
12	M998 Series					3	6			4	5	4	5	2	7	7	2					6	3			5
13																										
14	UH-1 Aircraft					5	4					6	3	6	3	5	4					4	5			6
15																										
16	UH-60 Aircraft	2	7			1	8			3	6	5	4	1	8	4	5					3	6			3
17																										
18	M577					8	1					3	6	5	4	6	3					1	8			
19																										
20	Other					2	7															*				
21																										
22		1		2		3		4		5		6		7		8		9		10		11		12		13
23		Respondents 1 thru 22																								

QUESTION 12: Rank in order the type of vehicle out of which you would want to operate for your command group.

A	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA
1																											
2		14		15		16		17		18		19		20		21		22									
3	RO		RO		RO		RO		RO		RO		RO		RO		RO		RO	TOT	RO	CV	RO	CN	RO	NC	RO
4																											
5																											
6	7.5	1	8	3	6	1	8	6	3	5	4	3	6			1	8			76.5	3	13	4.5	21.5	1	42	4
7																											
8	7.5			2	7	5	4	1	8	6	3	1	8			4	5			87.5	2	24	2	19.5	2	44	2.5
9																											
10	5	3	6	1	8	7	2	2	7	7	2	2	7			7	2			65	5	15	3	15	4	35	5
11																											
12	4	4	5	6	3	2	7	3	6	3	6	6	3			3	6			68	4	11	7	13	5	44	2.5
13																											
14	3	5	4	7	2	3	6	7	2	2	7	5	4			5	4			51	6	13	4.5	9	6	29	6
15																											
16	6	2	7	5	4	4	5	5	4	1	8	4	5			2	7			90	1	26	1	17	3	47	1
17																											
18				4	5	6	3	4	5	4	5					6	3			43	7	12	6	8	7	23	7
19																											
20																				7	8	7	8	0	8	0	8
21																											
22		14		15		16		17		18		19		20		21		22									
23																											

APPENDIX G:

SURVEY COMMENTS

1. Several of the survey respondents included comments with their returned surveys. Some of the comments were illegible, but most were clear and worth recording. The following comments are organized according to the questions they fell under. The comments are not attributed to any one individual, per the survey cover letter, which stated that all survey results would be presented only in summary format.

a. General comments submitted with the surveys:

"A command group is a personal thing, but it would be helpful to have an 80% solution which is functionally correct in doctrine & TTP. But to do that, you must agree on (the) functions of (the) TAC, MAIN, and REAR. If a commander becomes too much involved in any one operation, someone else is probably running his division."

"Important project."

b. Comments included with Questions #1 and #2:

"(I) Operated (my) command group only in training deployments."

"(Did not operate in the command group as a commander during combat, but) Did operate w/ DTAC 3AD in combat as ADC(M)."

"(Did not operate in the command group as a commander during combat), but did operate as an ADC(M) during DS/DS."

"(Did not operate in the command group as a commander during combat), however, fought the Division (minus 1 Bde) for Team Spirit '90 and fought the entire Division on Team Spirit '91 - Note, had a Republic of Korea (ROK) Bde attached for Team Spirit '90."

"(Did not operate in the command group as a commander during combat), though I ran a Regimental command group in ODS."

c. Comments included with Question #3:

"My Division Command Group (was) called an Assault CP. Ground (Command Group): 2 Bradleys (BFVs), and 2 each M113s = TOC, accompanied by a fuel HEMMT, and a PCM communications HEMMT. Air: Two UH-60s - One with command console, dismounted tent, generator, mapboards, table and chairs. Second (aircraft) provided security, backup communications, and support."

"70% (of my time was) spent at the TAC CP, 10% spent at command group (ground), 10% command group (air), and 10% MAIN CP."

"Nearly all of my time was spent between (my) air and ground command group."

"Base for planning future operations in the MAIN. CMD GRP will spend majority of time between TAC & Bde CPs."

"(Time will be spent) Split between command group (ground) and MAIN, with some time at DTAC."

"NOTE: You must discriminate between preparation and conduct of operations and account for pauses. During preparation the (commander's location) is TAC-MAIN-REAR. During execution the (commander's location) is command group ground, then air, then TAC, then MAIN. During pauses it's the TAC, then the command group."

d. Comments included with Question #4:

Under 'other:' "Ability to move under artillery fire and threat of bumping into by-passed enemy armor and infantry."

Under 'other:' "Ability to formulate concepts for future operations, assess probable outcome of current operations, make decisions and issue orders."

"(The need for qualified personnel is a) Given."

"(Factors) 1-4 are critical (communications, access to subordinates, continuous operations, and information) and are influenced by #8 (automation); however if a commander focuses on automation then 2 (access to Cdr's) becomes a major shortcoming."

e. Comments included with Question #6:

"Strongly disagree with 'ranking.' Cdr (Cmd Gp) Must have his head in two games continuously: current ops and future ops. (He can use a) Running SITREP. Where are friendlies/enemies? What are they doing? How are they doing: strength, progress, consumables, spirit and leadership? Is there a problem, opportunity? What are our options? Executing Commander's assessment of current operations. Are we still on plan - are things going as we expected or do we need a change - if change is needed, do we have an alternate in the hopper or do we need fresh options? Executing Commander's stance. Able to transition to future operations. Running estimate - given that current operations will turn out as expected (or as revised) - what is estimate of Enemy Situation and Friendly Situation over the next 24 to 36 hours? What are our options (alternate courses of action, (CoA))? What is our concept for future operations - Can we sustain (our) current level of effort or is a change needed? How easy is (it to) transition to the next phase."

f. Comments included with Question #7:

Under other: "One C2 helicopter."

"MSE is good for rear and stationary guys. FAX only need 8.5 X 11 size! Don't need to FAX horse blankets and huge overlays - not needed for battle command."

"(Multiple Channel SATCOM) but with mobile capability, not current version."

"Like to talk on a radio net so all commanders can hear the conversation."

g. Comments included with Question #8:

"(Lensatic Compass and Terrain Association) - Rehearsals!"

h. Comments included with Question #9:

"(Local Security) Totally situation dependent. My security force was an attached M1A1 platoon from unit replacement, one VULCAN platoon, and one MP squad. -- Moved with Brigade CPs and between them with lead Bn/Task Forces."

"(Local Security) Factor of METT-T."

"METT-T dependent."

"Don't need all of these (options) but do need some limited, local, protection."

i. Comments included with Questions #10 and #11:

"CG, G3, Ops Major, Intel Major, Arty Major, Log Major, 2 Ops SGTs, _____, sleep 3 hrs per 24 hrs - TAC CP answers and does 'heavy lifting.'"

"Make sure battle staff at future operations at MAIN CP also ran continuous operation - must get 4 hours sleep/24 hours, and 2 hours must be continuous."

"(Continuous operations) Very dependent on operation."

j. Comments included with Question #12:

"(M2/M3 series) - Ground mode. (UH-60 aircraft) - move to land at Alternate CP."

"(M998 HMMWV series and UH-60 aircraft) Equipped with commo and maps and information so (they) could track battle, command force, receive fresh missions and prepare and issue orders. Continuous capability. HMMWV were duplicated (triplicated) and could leap frog - Personnel manning in war is key."

Under other: "The new CP built on the chassis of MLRS called the Intelligence Fighting Vehicle when test fielded in Europe."

"(M2/M3 and M1) Modified for C2 use."

Under other: "C2V."

"(M113 and M2/M3) Combination in Assault CP."

k. Comments provided from Question #13:

"(1) Div, Bde, Bn commanders must lead from the front and co-locate with subordinate commanders at very point of action. CMD Gp or Assault. (2) MAIN CP at Div, Bde, Bn level organizes battle, controls and orchestrates supporting elements, maintains contact with higher and adjacent forces. (3) TAC CP - Provides alternate, redundant, forward CP at Div, Bde, Bn level. Command Group co-locates with TAC CP when possible and goes off the net."

" Manning is critical. Equipment is important (but you can have options). The HMMWV and UH-60 equipped with comms (secure voice, FAX, long haul area comms), maps and manned by 2 guys capable of formulating concepts and planning to support decision making was key. Used SAMS graduate and G3 or Deputy G3 for manning. My back up was generally ADC(M) during movement (operational movement). Commander must retain freedom to go wherever, do whatever. Difficult to stay up with higher HQs - MAIN CPs don't know what is happening and the commander is often not available. So command groups need to be able to communicate with each other. Need to lay out functions of CP in order to describe functions of command group. My view of functions: TAC CP - Runs current operations. MAIN - Tracks battle, executes orders and decisions, synchronizes the needed to support a given CoA, keeps higher HQs and adjacent units informed, LNO shepherd. REAR - support force, postures force for future operations (a key planning function often over looked). CMD GRP - Enable Commander (with personnel and equipment) to exercise command of force continuously."

"I would ask commanders for a model composition command group. For example: Division Commander, Aide de Camp, G2, G3, FSCOORD Representative, drivers (2 or 3), helicopter crew."

"(1) Need for mobility. M1 - M2 - M3 series (redesign turret, etc) for C2 vehicle. (2) Need to downsize MCS in 2d/3d generation. (3) As a side light - - need to develop a mobile C2 shelter for MAIN/TAC and command group. Replace expandable vans and M577."

"Standardization of CPs is vital. The Leavenworth manual addressing that is very good."

"Think your survey is on track. Its a great subject. In each category the choices are hard. For example, #4, (I) listed 'Info' as '2' and automation as '9' but in fact what I want is good communications that pushes automated information to where ever I am. My vision is a package that is portable in two small suitcases, that plugs into any communications means and that has automatic travelling position location update, enemy unit location feed from the intelligence system and interactive graphics (John Madden pen) capability with high and local commands."

"Division TAC CP must be able to keep up - present M577s are too slow and cumbersome. Satellite communication - TACSAT/Multi Channel must be at: TACSAT with the command group, TAC CP, MAIN, REAR, and brigades, DIVARTY, DISCOM. Multi Channel must be at command group, TAC CP, MAIN, and REAR. Division command group, Division TAC CP, must have no larger than a section of tanks to accompany. M2A2 are next best solution. Direct fire battle is an FM war backed up by TACSAT communications. No substitute for commander to commander instructions and

assessments. Division TAC CP and MAIN need TACSAT downlinks for intelligence, JSTARS, satellite photos, etc."

"Who should be in the command group? CG, G3 representative, G2 representative, Aide (note taker), body guard (?), ?"

"The real issue is not equipment but laying a concept for command given a changed environment. The current TAC/MAIN/REAR was laid down during the General Defensive Position (GDP) days in Europe. As a concept it works exceptionally well in that setting. The Gulf War clearly demonstrated that for offensive, pursuit, exploitation operations it is less than satisfactory. The British forces used an 'A' and 'B' CP - the main being the one the CG was at, the other being the alternate. Both CPs were identical and consisted of about fourteen 43-series vehicles (M113 like). Some protection, good mobility. Again, as in CBRS you need to lay down and agree on a C3 concept - the equipment piece is easy."

"You didn't ask who's in it - - the most important question of all - - or how it functions. I want FSCOORD, G3 planner, intelligence officer, and Air Force representative. (We) Will be out from 6 - 24 hours strait. Goes by UH-60 or UH-1 to vehicles, move with Bde, then flies to other set of vehicles or to DTAC, or REAR."

"Division command group must be small (i.e. CG, Aide, G3 officer, G2 officer, fire support officer), and it must be mobile. I prefer an aircraft, like lots of face-to-face with commanders. I like to rotate between the MAIN, TAC CP, and REAR. 2 - 3 HMMWVs works best on the ground. I prefer secure radios of some sort since all commanders need to hear each other talk to "see the battlefield," anticipate future operations, and build confidence."

"Offense and defense differ. Probably want an Engineer for defense. Air threat matters: might call for a STINGER team. Air situation and terrain/weather will affect how much the commander can fly. When it's reasonably safe, and/or when the operations spread over distance or divergent (exploitation, pursuit) UH-60's the best vehicle. BCTP needs to understand the function/importance of the command group and evaluate it as a regular part of C2 operations."

APPENDIX H:

INTERVIEW COMMENTS

1. The following comments represent the significant points presented by officers interviewed during this study. The summarized comments are not direct quotations, but the paraphrased comments recorded during the interviews.

2. MG Jared Bates, Commander, 2d Armored Division.

- We cannot fall into the fallacy of planning to fight the next war like we fought the last.
- The command group should be small with the function of serving as an "extension cord" of communication and information from the division to the commander.
- The command group provides protection with data.
- The commander needs a "face-to-face" capability with brigade commanders.
- The G3 may not be with the commander but with the DMAIN and the Chief of Staff (CofS). This provides a continuous operations capability at the DMAIN.
- The DMAIN is where the CG may go to ground. He cannot lose sight of the deep fight.
- The majority of the time the commander is moving to and with the brigades in contact.
- FM is the primary communications link, especially while on the move.
- To extend the division's C2, the division can deploy an Assault CP (ACP). This provides a forward division C2 with lift. This might work especially well in a contingency operation (CONOPS) scenario. Light vehicles are needed.
- The commander must not lose sight of the deep fight operation.
- If only one communications link is available, voice is preferred over digital.
- A commander should not have to analyze "raw" data.
- The command group is primarily a "conduit of information."

- The opportunity/necessity for working with a command group is infrequent.
- Training with a command group is not done at the NTC, nor in BCTP.

3. LTG Ronald Griffith, The Army Inspector General, former Commander, 1st Armored Division.

- Our command group was organized once we hit the ground in Saudi Arabia. People are the question? The DIVARTY Commander was initially with the command group, (I) later decided he wouldn't be. The command group operated near the TAC CP initially.
- In the command group were: The G3, G2, CG, and the Aide (who served in keeping others posted about tactical decisions). He was an informal eavesdropper or "scribe." He would call back to the TAC CP and keep them informed about (my) decisions made with brigade commanders during meetings. The crew is very important, so are the communications.
- #1 Biggest problem is long range communications on the move.
- We "jerry-rigged" a 254 antenna so we could have a crank-up antenna on the vehicle.
- The command group would operate for very short periods out of direct contact with the corps. The TAC CP always had it if the command group was moving, and we could talk with the TAC CP.
- MCS - it is not meeting all the expectations.
- Regarding the training of the command group: this occurred more by osmosis than design. We had a good G3 and G2, great ADC (M) BG Hendrix. We all went through an evolutionary process together. No formal (command group) training.
- Division Command and Control: BG Hendrix orchestrated the movement and combat operations of the brigades. (I) was on the net only for occasional input ("Everybody knew the plan!") CG focussed on Aviation Brigade and artillery (Deep Fight). ADC (M) concentrated on the close fight.
- Potential options for the operation had been viewed, rehearsed and known. This allowed for a smooth operation.
- The G2 should be talking with the TAC CP and the DMAIN through TACSAT.
- Command group emphasis in the future should be on: command vehicle development, radio communications (especially a TACSAT on the move capability), and intelligence systems.
- Observations: The idea of the TAC-MAIN-REAR (for division C2) is flawed for offensive operations. An option would be a command group and 2 CPs, identical in capabilities. The least engaged CP would be the planning cell (different focus),

while the one closest to the fight would handle the close fight. The division must have an "on-the-move" C2 capability.

4. LTC Keith Alexander, War College Student, former G2, 1st Armored Division.

- Over 19,000 messages were received by our division during the operation through intelligence channels.
- The 1st Armored Division developed a system to stream line intelligence information. The system was the "Hawkeye," now it is called "Warrior." A Sunspot work station computer maintained an intelligence data base. Through the KEYWORD SEARCH function, an accessor was allowed quick and immediate access to specific information. This system worked with one (1) analyst assigned to monitor an enemy division as his primary focus. This is a good system for background information, but not the best for actual operations.
- In the 1st Armored Division the G2 rode with the CG in the (command group) helicopter.
- Unfortunately (I) could not access the Intel net while in the air, but got an update when we hit the ground.
- (My) CG's guidance: "I don't want any surprises."
- LTC Alexander's observation: "The G2 should be with the Commander."
- The ADC (M) had the G2 OPS major running the current fight with him. This took place after the plan was completed. We put the G2 OPS with the DTAC.
- The CG was with the G3 and G2 fighting the deep fight.
- The SUNSPOT work station is very durable, it holds up well. Tie it in with a com link to the data base.
- CCIR is important. "Track every maneuver battalion," that was our guidance.
- Imagery is important.

5. CPT Pat Frakes, CAS3 Student, former Signal/Communications Officer for the 24th Infantry Division (M) Assault CP.

- 24th ID ACP was MG McCaffrey's primary location during combat. Occasionally he was in the Air CP (Jump ACP).
- UH-60 aircraft TACSAT: it worked great on the ground, but not in the air. This was due to problems with the omni-directional antenna (on the aircraft).
- TACSAT provided our internal division net. The maneuver brigade commanders had it, so did the DMAIN, DTAC, ACP, and the Aviation Brigade. There were a total of nine TACSAT systems in the division plus one VSC-7. These 9-each PSC-3s were installed by Signal Battalion personnel. PSC-3s are battery operated,

using BA 5590s. The system requires two each per unit, good for about twelve hours use. The VSC-7 had a vehicular power source.

- We used two types of antennas to support our TACSAT: HIGH GAIN and LOW GAIN. A HIGH GAIN boosts the satellite signal up12 decibels. The LOW GAIN boosts the satellite signal up 3 decibels. HIGH GAIN is the preferred choice.

- Our ACP also used an IMMARSAT (International Maritime Satellite). This provided a satellite link-type communication, initially non-secure. By attaching a STU-III telephone (with secure capability), and attaching a STU-III at the other end they generated a secure system. One was at the ACP, the other at the TAC CP. It was not used for tactical message traffic (per the agreement with the international consortium guidelines).

- The original ACP was composed of: one G2 CPT, one G3 CPT, one Signal 1LT, and one operations officer (the "tactical" Aide-de-camp).

- As hostilities began, the Commanding General arrived with the G3, deputy G3, deputy Fire Support Coordinator (DFSCORD), eventually the ADC (M) and the Division Command Sergeant Major (CSM).

- As hostilities began, support for the ACP included five (5) days of supplies and two fuel HEMMTs.

- The ACP grew with the addition of staff augmentation, a tank platoon (a big consumer of fuel), a VULCAN platoon, a signal team (1LT Frakes and three soldiers), two aides, one combat life saver, two Armored Combat Engineer (ACE) vehicle, and a translator.

- Long-haul commo link was provided through a multi channel TACSAT within the division Signal Battalion (vicinity the DMAIN). This served at the division communications hub.

- We also had an MSE FAX, which ran through FM.

- A TRACK 145 (communications equipment) mounted on a cargo HEMMT, provided the ACP with PCM tactical communications support. The HEMMT provided the greatest mobility capability for the TRACK 145. The TRACK 145 furnished five telephones to the ACP: 1-G2, 1-G3 voice and 1-G3 FAX, 1-Fire Support, and one for the commander.

- The FAX was used quite a bit for intelligence summaries (INTSUMs) from the DMAIN to the ACP.

- The ACP was initially behind the lead battalion of the lead brigade.

- The "night" aide was responsible for training the ACP crew, with help from a Sergeant First Class (11M) as NCOIC.

- The importance of our ACP's trainup showed by the quickness with which (we) executed battle drills: set up, displace, handle Prisoners of War (POWs), and

others. The ACP could pull into position and have all communications fully operational in approximately fifteen (15) minutes. Erecting the overhead tarp took the greatest amount of time.

- The "retrans" between the ACP and the DMAIN became non-responsive after a while. There was too much distance to cover over FM.

- (The commander's) CCIRs focused on lead brigade activities down to the individual battalions.

- The Air ACP had a UH-60 with SICPS tents, a ground generator, and a command console with headsets for the commander and his party. The Air ACP also had an external map board capability.

- V-Com (Victory Communications) worked through a PCM computer link to a host computer in the DMAIN. The communications links ran down to subordinates and passed information back and forth. We used this system instead of the MCS. This system worked through a Tactical Terminal Adapter (TTA). The TTA provided a telephone number to call up, a secure capability, and a line directly into the host computer. This produced a tactical "bulletin" board service, enjoyed by the division through lap-top computers via V-Com. The host computer was constantly updated with new information at the DMAIN.

- MG McCaffrey had not operated on the division FM command network prior to the start of hostilities. When he entered the net for the first time and said "This is Victory-6," the impact on net discipline was quite noticeable.

6. LTG John H. Tilelli, Jr., Deputy Chief of Staff for Operations and Plans, U.S. Army, former Commander, 1st Cavalry Division.

- Information flow is what is critical, not necessarily the equipment being used.

- He defined "visualizing the battlefield" to mean "as it is, and as it will be in terms of friendly and enemy" (situation). This requires the ability to make "face-to-face" contact with subordinates and get their assessment as well. This is extremely important to develop a real feel for the situation. It is important to hear and see the message sender.

- LTG Tilelli explained why, as he indicated in his survey, he chose to spend more time at the TAC CP during combat operations than at the command group. His definition of combat operations (as briefly discussed in the survey portion of the Chapter 3) included mission receipt and analysis, plans development, troop leading procedures, actual contact with the enemy, and post-contact operations. He did clarify that while the "attack" was occurring he was primarily at the command group. "It comes down to your definition of combat operations." This point highlights the lesson learned under "Surveys:" that a clear definition and construct of the survey question are necessary to obtain accurate responses.

- Addressing the issue of how many is too many for C2 systems redundancy, LTG Tilelli said that communications is the most important factor. The redundancy requirement does not mean (they) have to be side by side, nor does it have to be

the same equipment. The mobility requirement can be met with an M113, as well as a UH-60 aircraft. The commander must retain the ability to move to the other redundant source if he has to. The same communication links should be available.

- A division can operate on a 1:100,000 scale map, but a battalion cannot. This scale map will allow the division to do what it needs to do, but does not provide the detail a maneuver battalion requires.

- A division can operate on an internal TACSAT net as long as it gets down to each brigade commander and the Division Cavalry Squadron.

- An internal TACSAT network would be the communications link of choice for division command.

BIBLIOGRAPHY

Books

Allard, Kenneth C., LTC. Command, Control, and the Common Defense. London: Yale University Press, 1990.

Bender, Roger James and Richard D. Law. Uniforms, Organization and History of the Afrikakorps. Mountain View, CA: James Bender Publishing, 1973.

Campen, Alan D. The First Information War: The Story of Communications, Computers and Intelligence in the Persian Gulf War. Fairfax, VA: AFCEA International Press, 1992.

Dugan, Haynes W. Spearhead: Third Armored Division.. Paducah, KY: Turner Publishing Company, 1991.

Forty, George. Patton's Third Army at War. London: Arms and Armour Press, 1990.

Grant, Ulyses S. E. B. Long, ed. The Personal Memoirs of U.S. Grant. New York: Da Capo Press, 1982.

Hall, Margot C. The Victory Book: A Desert Storm Chronicle. (Historical account of the 24th Infantry Division (M) in Gulf War). December 1991.

Hillway, Tyrus. Introduction to Research. Boston: Houghton Mifflin Company, 1964.

Kahan, James P., and D. Robert Worley, and Cathleen Stasz. Understanding Commander's Information Needs. Santa Monica: RAND Corporation, 1989.

Kahn, E. J. , Jr., CWO. Fighting Divisions: Histories of Each U.S. Army Combat Division in World War II. Washington, D.C.: Zenger Publishing Company, Inc., 1945.

Keegan, John. The Mask of Command. Harrisonburg, VA.: R. R. Donelly & Sons Company, 1987.

Leonhard, Robert R. The Art of Maneuver. Novato, CA: Presidio Press, 1991.

Nye, Roger H. The Patton Mind: The Professional Development of an Extraordinary Leader. New York: Avery Publishing Group, Inc., 1993.

Rommel, Erwin. B. H. Liddell Hart, ed. The Rommel Papers. Translated by Paul Findlay. New York: Harcourt, Brace and Company, 1953.

United States Army. VII Corps. Mission Accomplished: The Story of the Campaigns of the VII Corps, United States Army, In War Against Germany, 1944-1945. Leipzig, Germany: J. J. Weber, 1945.

Periodicals and Articles

Anderson, Dean R., COL. "Modernizing Army Command and Control." Military Review Vol 70 no 7 (July 1990): 2 - 10.

Burkett, Jack, LTC. "Command and Control--the Key to Winning." Military Review Vol 70 no 7 (July 1990): 60 - 68.

_____. "Tactical Information: What You See is All You Get." Military Review Vol 71 no 11 (Nov 1991): 39 - 44.

House, Randolph W., COL, and Gregory L. Johnson. "C2 in a Heavy Brigade--Movement to Contact." Military Review Vol 71 no 11 (November 91): 10 - 19.

Kroesen, Frederick J., GEN (Ret). "What Should a Command Post Do?" Army 43 no 1 (January 1993): 32 - 35.

LeSueur, Stephen C. and Vago Muradian. "Almost Half of Procurement Programs at Risk." Army Times. (November 1, 1993): 28.

McCaffrey, Barry R., LTG. "Artillery--The Most Important Factor on the Battlefield." Interview by Patrecia Slayden Hollis (February 1994). Field Artillery, HQDA PB6-94-1: 4 - 7.

McDevitt, Kenneth A., CPT. "Why Standardize Command Posts?" Military Review Vol 70 no 7 (July 1990): 54 - 59.

Meyer, John J., COL. "JTF (Joint Task Force) Communications: The Way Ahead." Military Review Vol 73 no 3 (March 1993): 85 - 87.

Rickerson, Don, CPT, and Robert D. Rood. "Mobile Subscriber Equipment Leaps New Network Bounds." Signal Vol 46 no 3 (Nov 1991): 21+.

Saint, Crosbie E., GEN. "Commanders Still Must Go See." Army 41 no 6 (June 1991): 18 - 22+.

Tapscott, Mark. "SINCGARS (Single Channel Ground and Airborne Radio System) Upgrades Moving to Full Battlefield Communications." Defense Electronics Vol 25 no1 (January 1993): 29 - 32.

Manuals

U.S. Department of the Army. FC 101-55, Corps and Division Command and Control. Washington, D.C.: GPO, 1985.

U.S. Department of the Army. FM 11-50, Combat Communication Within the Division (Heavy and Light). Washington, D.C.: GPO, 1991.

U.S. Department of the Army. FM 22-100, Military Leadership. Washington, D.C.: GPO, 1990.

U.S. Department of the Army. FM 22-103, Leadership and Command at Senior Levels. Washington, D.C.: GPO, 1987.

U.S. Department of the Army. FM 71-100, Division Operations. Washington, D.C.: GPO, 1990.

U.S. Department of the Army. FM 71-100-1, Armor and Mechanized Division Operations, Tactics and Techniques. (Coordinating Draft, CGSC-CDD). Washington, D.C.: GPO, 1991.

U.S. Department of the Army. FM 71-100-1, Armor and Mechanized Division Operations, Tactics and Techniques. (Final Draft, CGSC-CDD). Washington, D.C.: GPO, 1993.

U.S. Department of the Army. FM 71-100-2, Infantry Division Operations: Tactics, Techniques, and Procedures. Washington, D.C.: GPO, 1993.

U.S. Department of the Army. FM 71-123, Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company/Team. Washington, D.C.: GPO, 1992.

U.S. Department of the Army. FM 100-5, Operations. Washington, *D.C.*: GPO, 1993.

U.S. Department of the Army. FM 100-15, Corps Operations. Washington, D.C.: GPO, 1989.

U.S. Department of the Army. FM 101-5, Command and Control for Commanders and Staff. (Final Draft, CGSC). Washington, D.C.: GPO, 1993.

U.S. Department of the Army. FM 101-5-1, Operational Terms and Symbols. Washington, D.C.: GPO, 1985.

U.S. Department of the Army. Command and General Staff College. Student Text 100-9, The Tactical Decisionmaking Process. Washington, D.C.: GPO, 1993.

U.S. Department of the Army. Training and Doctrine Command (TRADOC), Commander's Planning Group. TRADOC Pamphlet 525-100-1, Leadership and Command on the Battlefield. Washington, D.C.: GPO, 1992.

U.S. Department of Defense. Joint Chiefs of Staff. The Official Dictionary of Military Terms. Washington, D.C.: Hemisphere Publishing Corporation, 1988.

Reports, Studies, Interviews and Lectures

Alexander, Keith, LTC. War College student. (Former G2, 1st Armored Division during Desert Shield/Desert Storm). Telephonic interview by author, 12 February 1994, Fort Leavenworth to Fairfax, Virginia. Written recording.

Bates, Jared L., MG. Commander, 2d Armored Division. Interview by author, 18 November 1993, Bell Hall, Fort Leavenworth. Written recording. Command and General Staff College.

Clarke, Bruce C., GEN., and BG John H. Hill. ARC - Art and The Requirement of Command, Vol III: Generalship Study. U.S. Army War College. Washington D.C.: GPO, 1983.

Frakes, Pat, CPT. CAS3 Student. (Former Signal/Communications Officer for 24th Infantry Division (M) Assault Command Post during Desert Shield/Desert Storm). Interview by author, 10 February 1994, Fort Leavenworth. Written recording. Command and General Staff College.

Griffith, Ronald H., LTG. The Inspector General, U.S. Army. (Former Commanding General, 1st Armored Division). Interview by author, 12 January 1994, Bell Hall, Fort Leavenworth. Written recording. Command and General Staff College.

JULLS Long Reports. U.S. Army Gulf War Studies Specific Collection, Group VII Corps. AAR-040, Part 2 (Lessons Learned). Vol 2D, Lessons Learned Combat Phase, Book 2, Tab G. Command and Control (C2). SECRET, June 1991.

Pirnie, Bruce R. Division and Corps Command Posts in World War II. Washington, D.C.: U.S. Army Center of Military History, 1986.

Sylvester, John, COL., "Tiger Brigade Operations." AOAC briefing, Skidgel Hall: E-1 Classroom, Armor Officer Advanced Course, Spring 1992.

Tilelli, John H., Jr., LTG. Deputy Chief of Staff for Operations & Plans, U.S. Army. (Former Commanding General, 1st Cavalry Division). Interview by author, 24 February 1994, Bell Hall, Fort Leavenworth. Written recording. Command and General Staff College.

U.S. Department of the Army. Combined Arms Combat Development Activity (CACDA). Division Commander's Critical Information Requirements CCIR. Fort Leavenworth: Local reproduction , 1985.

U.S. Department of the Army. Division and Corps Command Posts in World War II. Washington, D.C.: U.S. Army Center of Military History, 1986.

U.S. Department of the Army. Center for Army Lessons Learned, Combined Arms Training Activity. "Newsletter: Winning in the Desert II." Special Edition, no 90-8, September 1990.

U.S. Department of the Army. Center for Army Lessons Learned, Combined Arms Training Activity. "Newsletter: Joint Tactical Communications." No 92-1, January 1992.

U.S. Department of Defense. Conduct of the Persian Gulf War: Final Report to Congress. Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25). Washington, D.C.: GPO, 1992.

Wong, BG. "Personnel Briefing." Officer Professional Development (OPD) briefing by Director, OPD, presented to Command and General Staff College Class 93-94. Eisenhower Auditorium, 18 October 1993.

Monographs

Gilbert, Daniel J., "Heavy Brigade C2: Is the Current System Too Complex?" SAMS Monograph. Fort Leavenworth, KS., 22 May 1989.

McElwee, Jerry W., "A First Cut at Doctrine for Automation of Division Command and Control." SAMS Monograph. Fort Leavenworth, KS., 30 May 1986.

Pennypacker, William S., "Automation: The Commander's Key to Victory in the Airland Battle or Another Source of Friction." SAMS Monograph. Fort Leavenworth, KS., 23 May 1988.

Powell, David S., "Synchronizing Fire Support for Heavy/Light Operations: -- A Command and Control Challenge for the Heavy Division." SAMS Monograph. Fort Leavenworth, KS., 20 June 1990.

Rowe, Richard J, Jr., "Command and Control of the U.S. Heavy Division on the Nuclear Battlefield." SAMS Monograph. Fort Leavenworth, KS., 18 May 1987.

Schmidt, Thomas C., "Tactical Information Gathering in [illegible]igh Technology Command and Control Environment: A Division Commande[illegible]idership Challenge." SAMS Monograph. Fort Leavenworth, KS., 5 Decem[illegible]er 1985.

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